THE COSMOPOLITAN.

From every man according to his ability: to every one according to his needs.

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A COLONNADE BETWEEN THE TEMPLE OF MUSIC AND THE TRANSPORTATION BUILDING.

NOTES ON THE PAN-AMERICAN EXPOSITION.

BY ROBERT GRANT.

COMPARISONS are odious, and at the same time often inevitable. Here we have a case in point. The free-born American who was so fortunate as to visit Chicago in the year of its White City inevitably asks himself first of all, as he contemplates the glories of the Pan-American, "How does this compare with our great Exposition?"

Moreover, the comparison is forced upon him by what he sees. He sees the same general scheme of department buildings; a brilliant, imposing city towering in staff as by the touch of a necromancer's wand; a kindred profusion of boldly imagined and freely executed groups of statuary; an analogous system of waterways; the same old Midway with a few novel features; in short, a practical reproduction of what appeared at Chicago—different and yet still the same. The White City with its Court of Honor was an astounding novelty. Many of us went there hopeful yet calm, and scarcely expecting to be thrilled.

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What we beheld amazed us, made us prouder than ever of our country, and opened our eyes to the great power and versatility of the nation. If our heads swam and we reveled in superlatives, there was a legitimate excuse for it. But the Yankee brain is not apt to swim twice from the same intoxicant. Nor will the free-born American, entitled to his own opinion, be restrained from saying, "I have seen something like this before," by the pious thought that the citizens of Buffalo have raised by popular subscription and expended for the gratification of the people behind by the sojourner at its Fair. Whatever the illusion may have been at Chicago, certainly one does not forget here that an exhibition of this sort is not solely a glorification of art and the humanities for their own sake, but is a business proposition as well, and a grand advertising scheme for the display of the inventions, manufactures and industrial enterprises of the Republic. This is an inevitable and legitimate purpose of all expositions, but the visitor will forget the fact if the enchantment be complete. At Buffalo the spell cast does not suffice to allure the sa-

ON ONE OF THE CANALS.

of the United States one million seven hundred and fifty thousand dollars, a sum supplemented by the donation of half a million from Congress.

Indeed, as one surveys with pleased eyes the architecture which the guide-book tersely terms "a free treatment of the Spanish Renaissance, a compliment to the Latin-American countries who are prominent exhibitors," the sardonic thought may intrude that Buffalo can scarcely have intended to make so large a gift to the American public without hope of return, both in glory and in current cash left gacious into buying a box of stain-removing soap made from the bark of South American trees, or to patronize the ubiquitous purveyors of optic lenses, who for some reason are much in evidence in the buildings. That is, in the daytime. At night one might be tempted to buy anything.

For instance, two friends of mine, cultured and rationally critical men from Boston, had a narrow escape from missing the distinctive and monumental feature of the Exposition. The beginning of the second week of June, when I happened to be there, was far from balmy. The wind

was sharp and overcoats were indispensable. The atmosphere rendered all but the very youthful indifferent to the charm of gondolas and open-air concerts. Returning at night to my hostelry at Niagara, I came upon my two Bostonians, warming their toes over a sea-coal fire. It appeared they were on their way West and had stopped over to see the Pan-American. They had seen it and were disappointed. It was well enough in its way, they said, but—an echo of Chicago without its fascination, and they had been nearly frozen into the bargain. Two hours had been sufficient for them, after a night in the sleeping-car, and they had sought solace in the grandeur of Niagara's falls and gorge, which had restored their faith in the eternal fitness of things. Parenthetically it may be suggested that there was a certain audacity on the part of the projectors of the Fair in setting up their plaster city in such proximity to one of the real beauties of the world. Yet there was method too in their madness, for it is but a step for brides from Goat Island to the Court of Fountains and the Sunken Gardens of the Pan-American.

"But," said I to my friends, "have you not seen the illumination?" They shook their heads. Thereupon I took upon myself to assure them that if they departed without seeing it they would be guilty of a cruel wrong to themselves, and that the spectacle was worth a voyage across the Atlantic. They regarded me skeptically, but they consented to go with me on the following evening. It was Sunday, and the atmosphere had softened and mellowed. There was no wind and the sky was without a cloud—a genuine June twilight. I piloted them along the Court of Fountains until we were at the southerly end of the basin. There we stood and waited with a throng of other watchers, looking back at the Electric Tower. The description of what followed will be trite enough to those who have seen it for themselves; yet who that seeks to specify the crowning and original feature of this Exposition will be able to pass over this unique sight?

THE PROPYLÆA FROM THE BAND-STAND.

The time fixed for the ceremony of illumination is half-past eight, just as the summer twilight is deepening into darkness. A few moments before the appointed hour, one perceives the bulbs of electric light

along the paths and in the buildings diminish in intensity until they become mere tiny specks of flame which fade away. There is a deep silence, and all eyes are riveted on the Electric Tower. Suddenly, in the splendid vertical panel with four brooches which decorates its center, there is a faint glow of light like the first flush of sunrise from behind a mountain-peak. It mounts and spreads, at first gradually, with dignified celerity, then with a swifter effulgent pervasiveness until the entire territory of the Fair has been metamorphosed into a gorgeous vision of dazzling towers, minarets and scintillating gardens. The Spanish Renaissance scheme of color is gone, and in its stead we have a veritable fairy-land; the triumph not of Aladdin's lamp, but of the masters of modern science over the nature-god, Electricity.

My two friends from Boston acknowledged utterly the spell of the occasion. There was no gainsaying the beauty and genius of the display. Behind the gleaming expanse of myriad jets of marshaled flame hung the clear, cloudless sky, a transporting background of lucent ultramarine, suggesting one of Dante's gleaming heavens. And as we gazed and sauntered musing, we overheard this pretty dialogue: An elderly couple passed us, and the husband murmured, "If we were to live another twenty-five years, what shouldn't we see?" Her gentle reply was, "You *will* see something very like this—the golden city!" Apt phraseology and an exhaustive popular tribute. Certainly the Pan-American is well worth visiting, if only for this sensation.

On the 7th of June, and subsequent days when I visited the Fair, the exhibition was substantially ready for inspection, but wore in many spots the air of a hasty and incomplete toilet. The State Buildings were almost universally in the early stages of erection; the Fine Arts exhibit was not yet open; few of the restaurants were in active operation; a number of the attractions of the Midway were still incomplete; and even in the main buildings—the Liberal Arts, Electricity, Machinery and Agriculture—though the principal exhibits were in order, there were evidences on every side of tardiness in equipment, and many booths were in a state of confusion. Perhaps discrepancies in punctuality are unavoidable, and it is too much to demand of human imperfection that an exhibition ad-

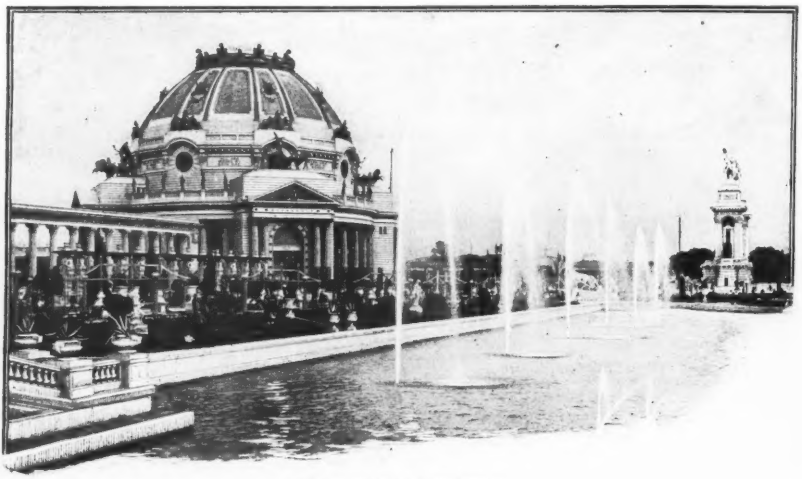
THE SUNKEN GARDENS.

THE PLAZA AT NIGHT.

vertised to be complete on a certain date should be finished thirty days later.

However this may be, the visitor at this period found an agreeable exception in the admirable display at the Government Building. Here everything was in apple-pie order. Intelligence, system and a keen appreciation of the opportunities of the occasion had evidently combined to produce an altogether interesting collection of Americana. No person, young or old, could fail to be instructed and entertained by the diversified exhibit which the government officials have set forth with due allowance for space and an eye for proper effect. There is no crowding, no superabundance of material. The clean and well-devised presentation of fish in the aquarium is a pleasure to the eye, from the sturgeon hobnobbing with the seal in the large tank

to the group of frail but aristocratic-looking albino trout. Among so much that was worth attention, I recall the carefully planned groups of American tribes in native costumes, with their implements; the comprehensive display of army and navy costumes from 1775 to the present day; the exhibit of ordnance and modern naval apparatus; the choice selection of interesting relics from the Smithsonian Institute; and the reduced facsimiles, offered by the Patent Office, of the McCormick reaper, showing its evolution from the primitive machine of fifty years ago to the complicated engine of twentieth-century agriculture. Every department of the government was adequately represented, and in a manner to educate and inspire the great public.



THE ETHNOLOGY BUILDING.

Probably, to eight persons out of every ten the effect of visiting a series of large buildings bristling with machinery and the products of the industrial arts is confusing, not to say paralyzing to the brain. Few if any of us can hope by a gentlemanly tour of three days through a great exhibition to carry away accurate knowledge concerning the scientific and mechanical apparatus which we behold. The eye becomes tired and the imagination sated by the plethora of cogs and blades, wheels and dynamos. There are spells when we are indisputably bored. But what a treasure-house this accumulation within a small compass of the results of American inventive and engineering skill must be to the student in search of practical demonstration and to the specialist who knows what he desires to see or examine! I am so constituted, unfortunately, that the details of machinery produce no more impression on my optic nerves than water produces on a duck's back; but I am in my ignorance, nevertheless, a genuine worshiper of the genius that can generate the marvelous mechanical devices which revolutionize the industrial processes of the world. Such a fine exhibit as the array of huge, grasshopper-like implements in the Machinery Building, those of the General Electric and Westinghouse Companies in the Electricity Building, and that of the Calumet & Hecla Company in the Mines Building, stirs our pulses with pride, even if we gape at it with unenlightened eyes.

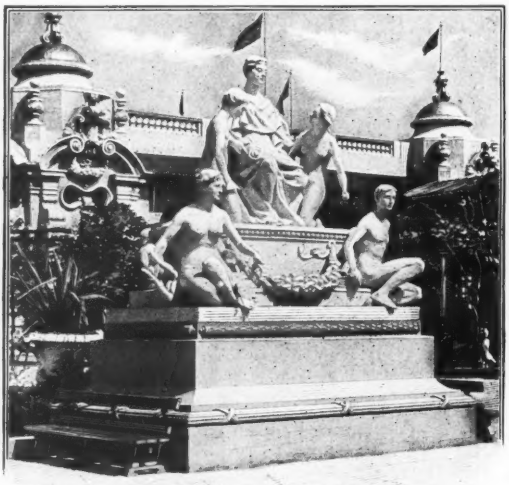
In the matter of the every-day industrial arts I suppose that we are all self-constituted judges of what is edifying and beautiful. In the course of my earthly pilgrimage I have been to many food fairs and to many mammoth bazaars where domestic manufactures, fancy dry goods and glittering small ware were set forth as here in continuous, bewildering booths. No one will deny that the exhibit in the Industrial Arts Building is representative,

comprehensive and highly creditable to the brains, energy and ingenuity of the nation. Who can be offended by such a patriotic declaration as this? Yet there is not much that is new or absorbing in this collection to any one who has kept pace with metropolitan shopping and read the advertising supplements of the magazines. This, of course, is merely a comparative criticism. There will be thousands of people not conversant with cities, and whose opportunities to travel are limited, to whom these variegated booths must be both a delight and a means of education. But I should not advise the traveled and sophisticated bridegroom to cut short his honeymoon at sublime Niagara in order to make time for a conscientious examination of the many foods, fabrics, Yankee notions and minor trinkets spread for inspection in this large building. Let me add that I do not wish to appear unappreciative of the respectability of the exhibit, but merely to suggest that it did not for me possess the charm of novelty or special distinction. Nor will the bride, it seemed to me, find the so-called souvenirs of Buffalo's glory—"something to remember the Fair by"—original or cajoling. I am free to confess that I am not susceptible to souvenirs of this class. Indeed, the passion for souvenir spoons in which some amiable people indulge as an esthetic diversion appears to me closely allied to the mental condition which protests against the nude in art. But there have been expositions where the popular fancy was arrested by keepsakes which were diverting and clever, if not artistic. At the Pan-American everything of the sort which I saw was hideous, and the souvenir card which I posted to an infant son was a cruel daub of the Electric Tower, suggesting a gaudy lighthouse struck by streaks of lightning.

LOOKING EAST ON THE MALL.

The architectural color-scheme of the Fair is one of those ticklish subjects concerning which there are sure to be diverse and conflicting opinions. It is certainly striking and positive. Colloquially speaking, the color is all there, and there is plenty of it. One seems to be walking through a park of South American palaces. Possibly it is the mental effect of being in South America which restrains the soul from complete enthusiasm, for we are not accustomed to think of South America in

superlatives. The architects and artists had constantly upon them as a nightmare the perfection of Chicago, and the problem of how to make another White City which should be the same and yet distinctive—should be entrancing without being white. The South American City with its splurge of Spanish Renaissance is dignified without being tawdry; is picturesque and interesting. But—for, like my fellow-citizens from Boston, I find a "but"—there is no temptation to the spectator to gasp and clap the hands. Naturally the buildings are of different degrees of merit, but the color-scheme is so predominant that in spite of variations of shape they produce at first the effect of looking all alike, just as the Chinese do until we are accustomed to them. Among the orgie of color there is nothing more individual than the commanding Electric Tower itself, with its garish but highly effective treatment in white, blue and gold and its cascade bursting from a concave panel of cerulean blue and tumbling into the basin below.



THE AGE OF ENLIGHTENMENT.

Whatever one's opinion as to the comparative value of the architecture, all will agree that the dedications, or apostrophes, on the several main buildings were composed with a fine discretion. Their sentiments are appropriate and stimulating, their diction is euphonious yet simple.

As in the case of the architecture, it seemed to me that the statuary, though the work was often spirited and assertive, was less fine as a rule and as a whole than what appeared at Chicago. It struck me that the free-hand treatment in the minor pieces betrayed at times a lack of finish which came perilously near being slovenly. But every visitor will admire without reservation the splendid equestrian figures which mark the entrance to the main court on the southerly side, abutting the termination of the bridge which leads from the Park. Are they not masterly, stately and ornamental?

It should be added that criticism of the esthetic attractions of the Pan-American is invidious for the reason that Chicago has given us so stern a standard of comparison that there is danger of seeming unappreciative of the work of the imaginative and public-spirited men whose contributions as a whole afford an inspiring spectacle to a grateful public. But I doubt, nevertheless, if the South American City can be deemed an overwhelming success from an artistic standpoint.

The visitor to the Fair in the early days of June could not but be impressed by the preparations which had been and were being made for the entertainment of a great democratic people. It was obvious that the management had planned to provide liberally the miscellaneous and popular attractions which have become prominent features of every large exposition. A big modern fair is now the Mecca not only of those hungry for knowledge or thirsty for inspiration, of the patriotic and of people who travel once or twice in a lifetime, but it has become the stamping-ground of hordes of organizations whose badges flutter in the breeze and whose annual meetings are held in the hotel corridors appurtenant to the Exposition grounds. A few of these marching bodies were in evidence when I was there, but most of them were

THE GRAPHIC ARTS WORKSHOP.

still to come. A glance at the guide-book reveals that over one hundred annual conventions are scheduled to be held in Buffalo before the 1st of November, and this list, drawn from at random, includes bodies as dissimilar in character as the Western Dancing-Teachers' Association, the Layers' Union of North America, the International Cremation Congress, the Hoo-Hoo National Concatenation and the New York Sabbath Association. It seems to be assured that there will be "strenuous" times at Buffalo as a consequence. And, barring the consideration of heat, what a stirring and agreeable method of spending a holiday week this trip will be to the tired workers of the country—to whom we all belong!

Diversion for the visiting multitudes is provided according to their tastes by the Stadium, by band concerts, by organ recitals in the Temple of Music and by the irrepressible and somewhat irresponsible Midway. At the Stadium—or combination ball-field and sporting-track, in elaboration of that at Athens (and of course larger)—the "continuous carnival" of events arranged for had already begun. Base-ball games, bicycle races, lacrosse matches, canoe meets, basket-ball championships, track athletic contests and firemen's tournaments will succeed one another with business-like variety. There are diverse open-air band-stands at which one may hear good, indifferent or distressing music according to the quality of the band which one happens to draw in the daily band lottery, for the visiting bands, like the visiting organizations, have their special days. I was not invariably fortunate. I remember listening to one in the forenoon in the Temple of Music, the noise of which was a happy accompaniment to the decoration of that bilious-looking edifice. But the great organ in the Temple of Music is a superb instrument, though, as I was told, it was temporarily not quite in tune. On several occasions I sought a respite here from the fatigue of sight-seeing and joined the appreciative music-lovers and the fugitives from the keen Buffalo wind, who together made a considerable audience for the solitary performer. The acoustics of the building seemed to me excellent, and in the topmost row of the gallery the tones

of the organ came to me full and clear.

The center of diversion, of course, is the Midway, which even in its name is directly reminiscent of Chicago, and which is the same old grotesque but alluring combination of circus, ethnological bazaar and variety-show. At an ordinary circus, even the mature are apt to eat popcorn and drink pink lemonade as a rebuff to their own solemnity, and to a greater degree in this modern annex to a serious exhibition we are all of us led by easy-going curiosity, or a light-hearted spirit of fun, to poke our twenty-five-cent or ten-cent bits through the aperture in the cashier's cage in response to the fetching eloquence of successive showmen. I did my Midway with some thoroughness, and was more or less entertained — sometimes by the superbly grave fluency with which the employees recited their lessons rather than by the humor of the show itself. For instance, the running account of Antony and Cleopatra given by the exhibitor throws the portrait of the fair Egyptian completely into the shade and saves one from regretting the loss of the dime. There was nothing more entertaining among the attempts to reproduce foreign peoples than our old acquaintance, the "Street in Cairo," with its glittering bazaar manned by olive-skinned attendants, who, in their whining, wheedling efforts to sell you many things for which you have no use, drop the price one hundred per cent. as they grasp your arm and whisper: "See here, beeziness is bad. I'll let you have it for three dollars." What, by the way, can be the special charm to the American young woman in being jolted by a camel? On the afternoon when I was there, no fewer than half a dozen girls of eighteen years and upward, generally two on a camel, were bumping through Cairo most ungracefully on these ancient beasts, to the amusement of everybody else.

THE HORTICULTURE BUILDING.

The Indian Congress contains one of the largest and most genuine-looking bodies of warriors which I ever saw brought together for spectacular purposes. Many of the braves and squaws were large-featured, vigorous specimens of the race. They were most lavishly and picturesquely decked out with feathers and war-paint, so much so that their ochers and reds were a formidable rival to the Spanish Renaissance scheme of color. There was one chieftain who indulged in blue cheeks. On the day of my visit a huge placard in front of the novelty entitled "A Trip to the Moon" announced that Chauncey M. Depew had made the ascent a few hours previous. As a part of the experience you find yourself presently on the deck of a ship journeying toward the lunar sphere. So considerable is the illusion produced that an elderly lady next to me expressed alarm and could not

THE ELECTRICITY BUILDING AT NIGHT.

be convinced by her friends or the attendants that the air-ship on which we appeared to be mounting through space was stationary. From this gay performance to the pathos of the infant incubator is a violent change in mental atmosphere and an illustration of the heterogeneous character of the Midway. There tiny babies prematurely born lie on miniature beds in neat little ovens from which they are taken at regular intervals to be fed, weighed and reswathed. One of the most liberally patronized features of the Midway was "Alt Nürnberg," a picturesque reproduction of a street in Nuremberg, at the end of which one finds a restaurant, partly in the open air and partly under cover, where one can take luncheon or dine acceptably and listen to a spirited German band.

The exhibits of the Latin-American countries, like the countries themselves, are independent of one another, and so do not present a solid front to the casual eye. Some of them have merely space in one or another of the main buildings, and consequently the visitor (like most of us) without conscientious scruples as to sight-seeing is liable to overlook the interesting and curious collections of their native products and manufactures. But Chili has a distinctive building for the display of its interesting and complete exhibit, and so have Ecuador and some of the Central American countries and Mexico. The Canadian exhibit in a large building of its own is very representative and well arranged, and I noticed that the Canadian display of fruit in the Horticulture Building was equally creditable.

Among the great fairs of the world the Pan-American will hold an honorable place. It provides the people of the nation with comprehensive and systematic information in regard to the products and industrial accomplishments of the hemisphere, and at the same time diverts them in true democratic fashion. Its setting is picturesque and interesting, but is not an artistic triumph. Its unique and compelling feature is its electric-light illumination, which is superb and a masterly achievement. Buffalo is to be congratulated. To put the case concisely, St. Louis should gird her loins, but she need not despair.

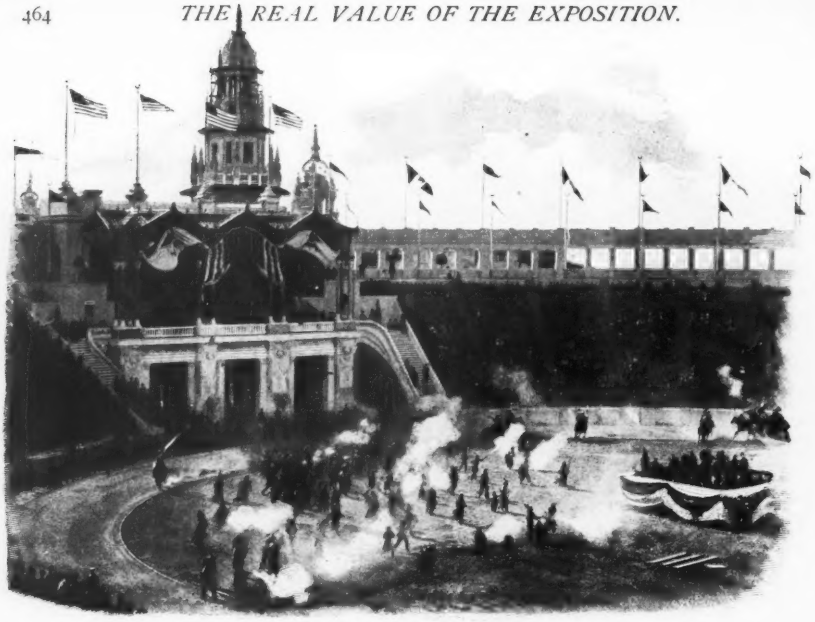
A BAND-STAND NEAR THE TRIUMPHAL BRIDGE.

ON THE CANAL BETWEEN THE STADIUM AND THE AGRICULTURE BUILDING.

THE REAL VALUE OF THE EXPOSITION.

By Albert Shaw.

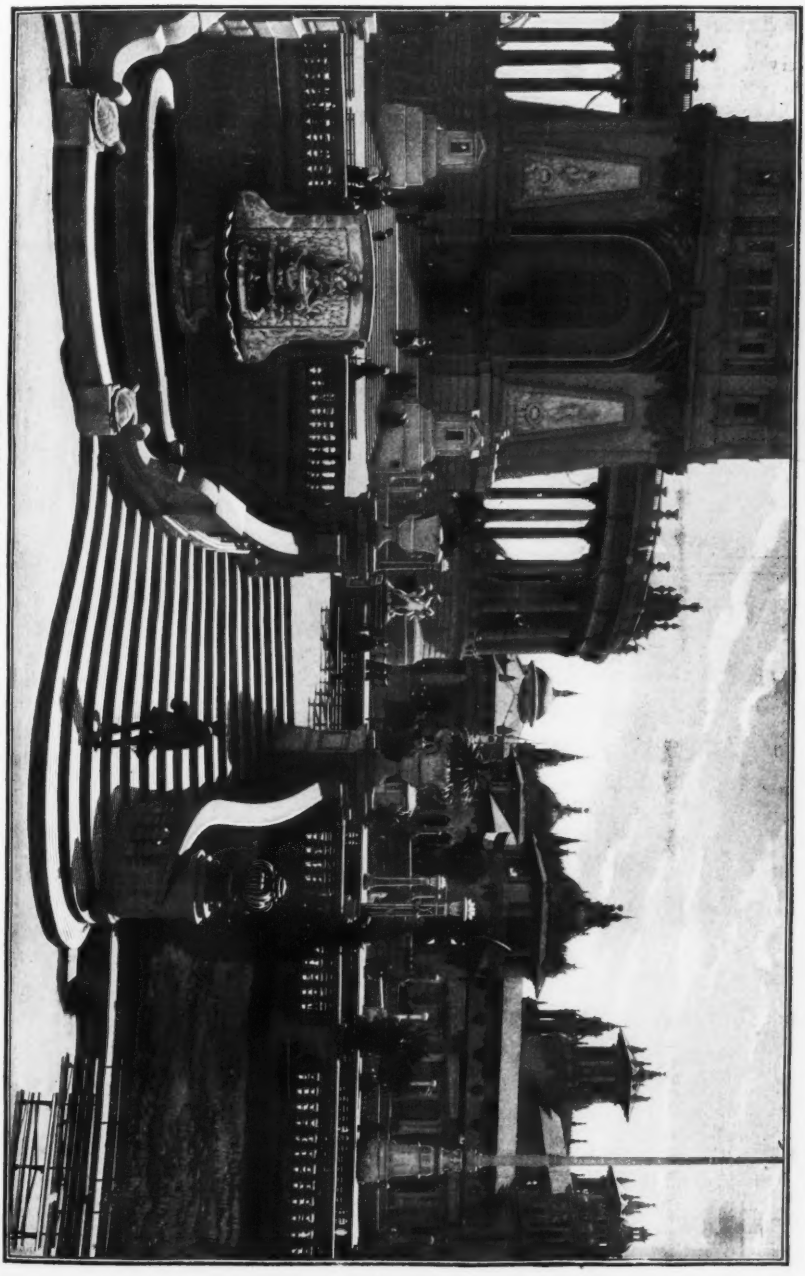
IT would not be easy to overestimate the educational value of the objects of beauty and of historical interest that have accumulated in such European towns as have had centuries of a noble and distinguished life of their own. In such cities one finds monumental architecture, galleries of paintings and sculpture, museums filled with treasures of other days, and many things besides that stir the imagination, stimulate a thirst for knowledge and awaken and educate the esthetic faculties. It is obvious enough that the modern commercial town lacks many of the advantages of the town with an ancient and important record. But we have also learned that the new city may wholly transform its own character and greatly enlarge the opportunities of its citizens by a display of high ambition and well-directed energy. We know what wonderful things Florence and Venice did in their time, with results that have contributed ever since to the progress and happiness of the world. We have been living through a new period, particularly in Germany and England, in which there have been exhibited in a large number of towns a fine civic spirit and a notable capacity for collective action to the end of improving all the conditions of local existence. It is the sanitarian and the engineer, to be sure, rather than the artist and the architect, who are the leaders in this civic renaissance; but the esthetic spirit is by no means absent. The idea is now current that the modern town that respects itself and cares anything at all for its future can afford to have good schools, streets, water, light, public buildings and parks, and at least a public library if not a picture gal-



A SHAM BATTLE IN THE STADIUM.

lery. Much of the marvelous beauty and wealth of public architecture and art in comparatively small European cities has been due—as any one will understand on a moment's thought—to earlier political conditions under which at some time the town in question was the seat of government of some petty kingdom or duchy. In these days of great empires and extended sovereignties those oldtime motives for the aggrandizement of small capitals have disappeared. The new motives must be derived

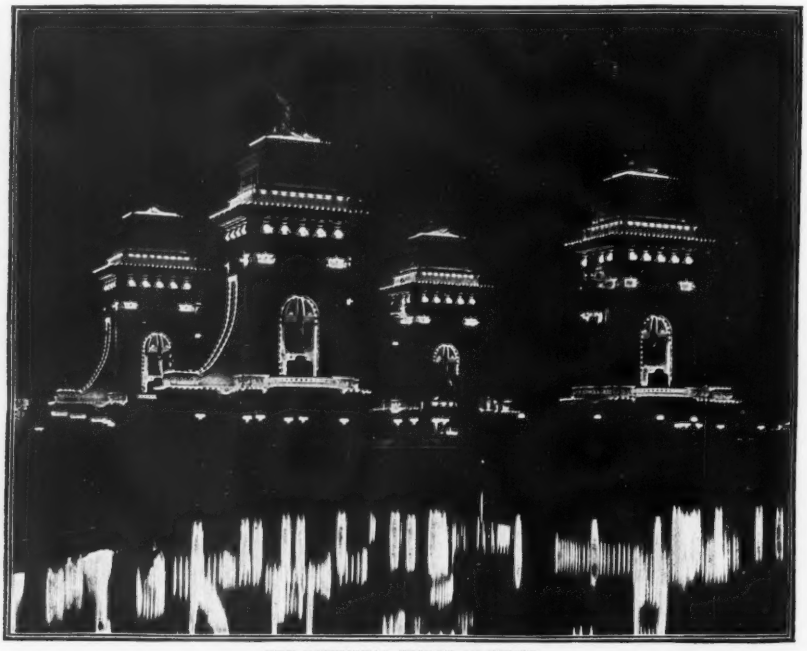
DINING IN ALT NÜRNBERG.



THE ENTRANCE AT THE REAR OF THE ELECTRIC TOWER.

from the pervasive public spirit of the inhabitants at large.

The tendency to create expositions is a very valuable part of the outworking of these new motives. When the event has become a little more distant, so that it may be justly estimated, it will be seen that the determination of Chicago to identify itself with the Columbian World's Fair, and the successful efforts that the people of Chicago made to express their aspirations in the working out of that enterprise, formed one of the most significant things in the history of civilization at the close of the nineteenth century. The whole future of Chicago as our great interior center of enterprise and enlightenment was changed for the better as a result of that concentrated local effort to do a great and fitting thing. City architecture in this country has been an inharmonious jumble. Where good buildings had been constructed, their effect as a rule had been lost through lack of dignity or harmony in the setting and the general environment. The "White City" in Jackson Park gave millions of Americans for the first time in their lives a conception of harmony in the architecture of buildings placed near one another in towns. That conception is now influencing the development of hundreds of cities and towns in the growing and prosperous West. It was further reinforced by the charming arrangement of the buildings at the Omaha exposition five years later, and again it is exemplified in the buildings of the Pan-American at Buffalo. Certainly, then, in the matter of the external aspect of our growing towns and cities, the various



THE TRIUMPHAL BRIDGE AT NIGHT.

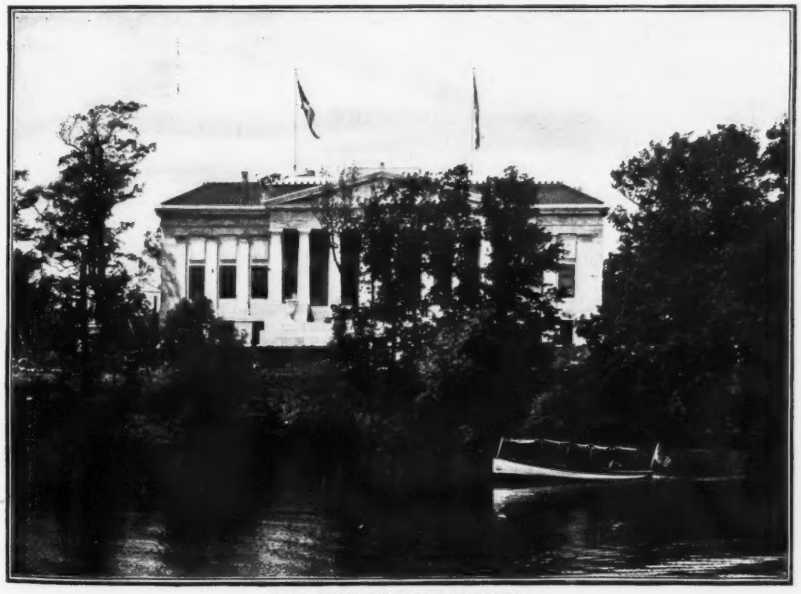
American expositions have had a better influence than any other one thing. They have introduced flexibility and beauty into the designs of public buildings—as, for example, the new post-office at Chicago, which probably owes its architectural excellence to the Columbian Exposition rather than to anything else.

Undoubtedly the more strictly local expositions that at one time or another have been held annually for a few years in American cities would be found to have exerted a profound influence in an educa-

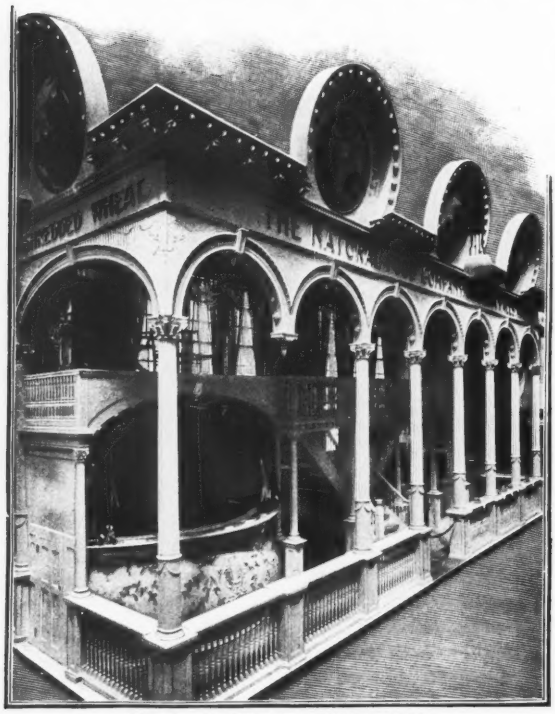
ON THE COURT OF THE FOUNTAINS.

tional sense upon the progress of their respective communities. Thus the old Cincinnati expositions held annually for a number of years in the early seventies bore a very vital relation to the subsequent development of Cincinnati as a local center of music and art. The St. Louis and Minneapolis expositions had a similar local value.

The holding of the Centennial Exposition at Philadelphia in 1876 contributed in ways almost innumerable to the intellectual and esthetic progress of the people of the United States. It is a bold statement but probably a true one that half of what the entire population of the United States knew about art twenty years ago had been



THE NEW YORK STATE BUILDING.



ONE OF THE MANY BEAUTIFUL BOOTHS.

derived from the art department of the Centennial Exposition, as witnessed in a few short months. Those Americans who have traveled much, and to whom a visit to Europe is an easy and a frequent thing, are prone to forget how few good works of art the average American boy or girl has ever had a chance to see. And the art departments of expositions in this country, even when not very meritorious from the European standpoint, have opened a new world to thousands of young people.

It is not less true that the assembling of new and wonderful works of mechanism in expositions has had a widely important effect in stimulating the naturally great inventive faculties of young Americans.

The blasé person who walks in a bored way through the machinery halls of our great exhibitions, even though lacking in the capacity to understand or to enjoy the latest achievements of science and invention, ought at least to try to keep alive some capacity for observing human nature. For, in that case, he would come to the machinery department, not perchance to study any particular kind of mechanism, but to note the eagerness and enthusiasm of the American boy —preferably from the country, but often also from the city—as with quick intelligence he improves the opportunity afforded him to study the latest inventions.

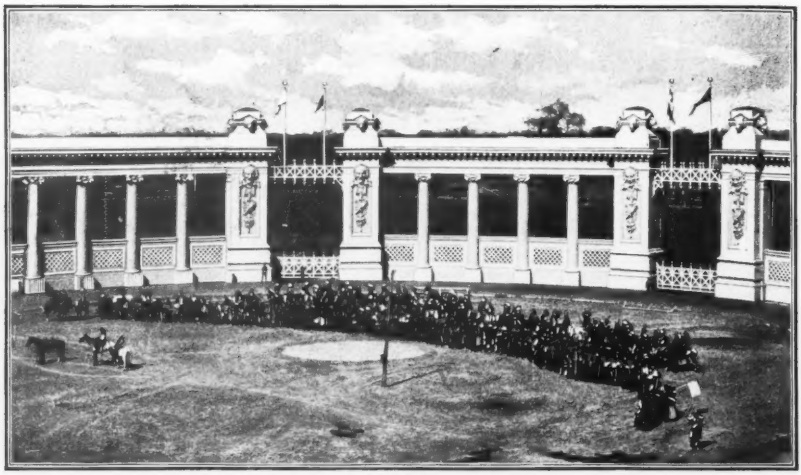
I have always found the exhibits that relate to educational work in the strict sense a source of much use and enlightenment. Thus one could get a better understanding of the methods and objects of educational work as carried on in the schools of Paris by

THE DOMINION OF CANADA BUILDING.

ON THE CANAL IN FRONT OF THE ELECTRICITY BUILDING.

two or three days' study of the exhibits made in the great French expositions of 1889 and 1900 than by weeks or even months of investigation otherwise conducted. Paris, for instance, is a very rich and a very industrious city, in which almost everybody is profitably employed, and in which there is less violence of fluctuation from exceptional prosperity to exceptional dullness than in almost any other great city. This is due in a large measure to the intelligent way in which the Parisian people have built up industries of an ingenious and artistic nature, giving a high value to a varied product for which the demand is constant and extensive. Thus the Parisians do not seek to turn out cheap wares in vast quantities like Manchester or Birmingham, but to make fine things with the peculiar impress of style. The French expositions have not only revealed these characteristics of the industrial life of Paris, but they have also shown in a most interesting way how the schools aim to perpetuate and to advance the industries for which the city has long been preëminent. The exhibits of the practical trade-schools show at a glance how zealously Paris teaches her daughters the arts of dressmaking and millinery, including such

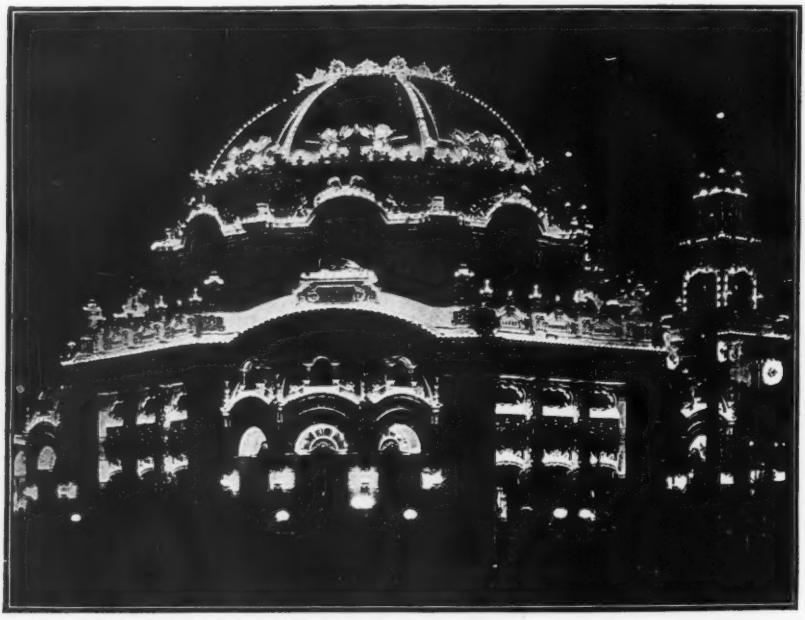
THE GODDESS OF LIGHT.



INDIAN HORSEMEN IN THE STADIUM.

special details as the making of artificial flowers and a hundred other things; and how the boys are taught the designing and making of fine furniture and those wares known to commerce as articles de Paris.

In Germany, this year, while one does not find great general expositions attracting international attention, there are various local exhibitions, expressing chiefly the new zeal of the Germans for progress in the fine



THE TEMPLE OF MUSIC AT NIGHT.

AN ENTRANCE TO THE NEW YORK STATE BUILDING.

arts and in the application of art to industry. There can be no doubt of the rapid progress under such methods of many of these German towns, not merely in heavy and cheap manufactures on the one hand and in high art on the other, but also in that happy union of art and industry which adds so much to the commercial value of the manufactured output, and also to the general progress of a nation in refinement and intelligence.

The attempt to do some important thing that requires courage and great effort, whether for the individual man or for the community, is always attended by minor achievements that would not otherwise have been made—with permanent results of living and thinking on a higher plane. Thus the determination to carry out the plan of the Exposition of 1900 brought Paris to the point of awakened energy and will which made it possible to do many

THE ACETYLENE BUILDING.

things by way of public improvement that otherwise might not have been done for a long time. The underground railway, the permanent art buildings, the new Nicholas Bridge, certain important railway terminal improvements and various other things worth while might be cited as incidental results of the spirit of fresh vigor and effort that was aroused by the decision to hold a great international exhibition. Chicago in like manner was aroused to do many things under the general spell of the enthusiasm that the Columbian World's Fair had kindled.

Buffalo in its own way will derive many permanent benefits from the quickened ambitions and impulses of its Exposition period. Buffalo owes its origin to certain conditions that made its location an important focus in the routes of commerce and travel. It seems to be on the threshold of a very great and brilliant future. Much of the character of that future can be determined by the foresight and energy of the present generation. The Exposition is of itself a demonstration of high public spirit and of rare capacity for united action on the part of the citizens of Buffalo. Doubtless a hundred years hence the people of what will then be an enormously expanded Buffalo will dwell with great interest and pride upon two epochs vital and creative in the history of their city—one being that of the construction and opening of the Erie Canal, and the second being that of the Pan-American Exposition and the successful utilization of the Niagara power. Let us hope that they may also have a third great epoch to look back upon and celebrate, namely, that of the opening of a ship-canal to connect them and their chain of inland seas with the ocean highways.

THE UNITED STATES GOVERNMENT BUILDING.

THE CITY OF THE FUTURE—A PROPHECY.

By John Brisben Walker.

ONE cannot enter the gates of the Pan-American Exposition at Buffalo—that wonder of color and form which rises before the visitor—without mentally reverting to the City of White Palaces of 1893, only eight years ago, with its throngs of amazed and delighted people. Even while the mind is filled with delight and astonishment, there comes a subconscious picture of the neglected "Pinta" which sailed so boldly across the Atlantic, and now lies abandoned in a marsh from which rise the charred ends of many piles—the only remaining vestiges of that famous White City. What a shame if these marvelous creations at Buffalo are to meet a similar fate! "What a pity," the visitor reflects, "that another two or three millions could not have been added to the funds at the disposal of the commission, and the walls stand in substantial brick and mortar instead of wood and staff!" It might have required that the Exposition should have been located a few miles farther out on the prairie. Then at its close the aggregation of palaces might have been converted into a model city; the Palace of Liberal Arts become a great factory; the Temple of Music stand as the theater hall; the Stadium remain the great amphitheater that it is, to which Buffalo could flock in years to come for its amusement. Games would, doubtless, be born worthy of the dignity of their surroundings. The buildings constructed by the states of North and South America would become private houses set in the most beautiful of parks. Probably three-fourths of the cost of the Exposition has been in the work on its designing, its parks, its waterways, and the workmanship of its architecture and monuments. Only the materials of the exterior are temporary. Another million or, at the most, two millions expended would have left every wall in the most durable of materials. What a pity then, what a waste that this small additional sum should not have left the work of great artists in lasting form!

For this is the lesson of the fair—that it illustrates what men working in harmonious effort may accomplish for the delight of all. Who believes that the people of the second half of our new century will be

content to live in those abominations of desolation which we call our great cities—brick and mortar piled higgledy-piggledy, glaringly vulgar, stupidly offensive, insolently trespassing on the right to sunshine and fresh air, conglomerate result of a competitive individualism which takes no regard for the rights of one's neighbor?

Wandering in these streets of varied forms, the mind is entranced by the eternally changing color always in marvelous harmony. Down the great central court to the left, by the fountains on the Esplanade, in the maze of the Horticultural and the Graphic Arts Buildings, then under the graceful pergolas to the magnificent erections on the Bridge of Triumph, the colors change and change until the whole prismatic spectrum seems to have been exhausted twenty times over—yet never a repetition, only restful harmony.

THE BASIN IN FRONT OF THE GOVERNMENT BUILDING.

How was this marvel of construction brought about? Why three miles away are a thousand ungraceful shapes piled garishly together, and here this dream of perfection? The answer comes—it is but the difference in systems. One represents human effort disastrously expended under individual guidance in the competitive system which takes no thought of neighbor. The other represents organization intended for the best enjoyment of all. One stands as the remnant of a barbarism handed down through the centuries. The other stands for the aspiration of the human mind under the unfolding intelligence of an advancing civilization. In the light of this new city the old seems almost as much of an anachronism as the walled city of the Middle Ages with its turrets and donjon and drawbridge and portcullis.

How was this present marvel constructed? Very simply. The men of high intelligence whose liberality is responsible for this exhibit came together and said: "Let us seek out the great artists in architecture, in sculpture, in landscape, and bring them here to Buffalo. Then we will ask them to work out in unison a scheme, every part of which shall be in perfect harmony with every other part; shape, environment, distance, color, shall all unite in one great harmony."

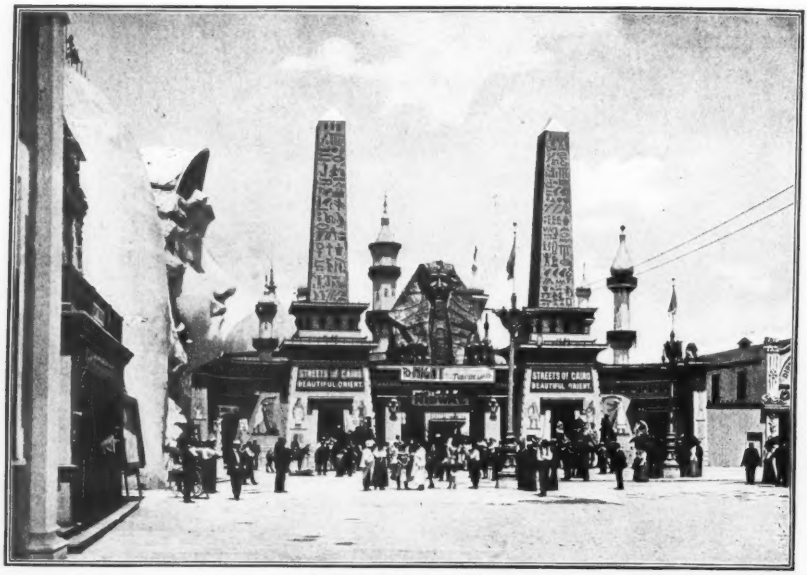
The Chinese philosophers have derived from their four thousand years of study one idea of heaven, and their word for it is HARMONY. Through all their highest philosophical ideals runs this one word—harmony. With their limited economic

LOOKING TOWARD THE MIDWAY THROUGH THE SUNKEN GARDENS.

conditions they have never been able to express this conception in material form. It has been left for this richest of peoples twice to make expression of it in form and color. This, then, may be taken as the great central idea of the Pan-American Exposition—a Prophecy of what the city of the future must be—a beautiful location arranged, first, with reference to its landscape; second, with reference to its form and perfection, and, next, with reference to satisfying the eye in its blending colors—all carefully planned and worked out with reference to the uses to which it is to be put.

When commerce ceases to be war, when the world ceases to educate its best brains for the destruction which is meant by competition, when human talent shall be converted to its highest sphere of usefulness, then we shall have the sites of cities selected by commissions having the highest good of the proposed community at heart, instead of by cornerers and peddlers of real estate.

Sanitary advantage will be considered in a scientific way, and homes and factories will be outlined with reference to the highest advantage of the entire community. Harmony throughout all will be sought, instead of the freaks of individuality.



A CORNER OF THE MIDWAY.

MR. DOOLEY ON THE MIDWAY.

By F. P. Dunne.

"I TOL' ye wanst," said Mr. Dooley, "that f'r wan man that goes to a wurruld's fair to see how boots is made, they'se twinty goes to see th' hootchy-kootchy an' that's where th' wan lands fin'lly. 'Tis so. There was a time, Hinnissy, whin people was inthrested in th' cannin' iv fruit an' how lamp chimblies is blowed. I know a frind iv mine wint to th' Cintinyal in Philydelphy an' los' th' use iv his legs thravelin' fr'm th' display iv mohair shawls to th' mannyfacthry iv open-face watches. An' he thought he'd had a good time. He cudden't make a watch, lave alone buy wan, anny more afther he'd seen thim made thin whin all he knew about thim was seein' thim hangin' in th' window iv a pawnshop. 'How ar-re they made?' says I. 'Well,' says he, 'wan man sets at a machine that makes th' wheels,' he says, 'an' another man at a machine that makes th' case,' he says, 'an' so on, an' whin all th' parts ar-re complete,' he says, 'they're put together be another man an' there ye ar-re,' he says. 'An' there I am,' says I. 'An' that's how watches is made, is it?' says I. 'Well, I know a more gin'rally un-

A BIT OF ALT NÜRNBERG.

dhershtud way in makin' a watch thin that,' says I. 'How's that?' says he. 'Whin th' man that owns it isn't lookin',' I says.

"'Twas so at Chicago. They showed me a printin'-press, an' I believed thim. They pinted out rocks an' said goold was made fr'm thim, an' I niver winked an eye. They took me down an' faced me again th' wondhers iv arts an' science an' commerce an' human ingenooity an' says: 'Behold,' says they, 'what man is doin' f'r himsilf. Th' pant that wanst took wan in Ol' Vienny,' I says. 'Take me,' I says, 'to th' Midway,' I says, 'f'r th' gr-reatest wurruk iv human ingenooity is human bein's an',' I says, 'they're all there,' I says. 'Whin that machine larns to blow "Ich vise nix vas allus bediten" on a horn, an' th' other wan can dance to th' music iv a tom-tom, I'll come back an' ask if I can't buy thim something,' I says. 'In th' manetime,' says I, 'tis, ho! f'r th' Sthreets iv Cairo,' I says. An' I wint. An' so goes ivrybody.

"'Tis no wondher that my clothes is

IN THE JAPANESE VILLAGE.

man eight days to complete is now hurled out at th' rate iv a thousan' a minyit be yon vast machine,' says they. 'That grreat injine over there is thransformin' th' hog iv commerce into th' butther iv th' creamery,' they says. 'Come an' see th' threshin'-machine an' th' hydhraulic pump an' th' steam-shovel,' says they, 'an' have th' time iv ye'er life,' they says. 'No,' says I. 'I seen enough f'r a day iv pleasure,' I says, 'an' now I think I'll back up fr'm th' wondhers iv science an' lane me fevered brow again a tower iv Pilsener beer made be machinery. Th' on'y wondher is that I can get thim afther they're made. Th' printin'-press isn't wondherful. What's wondherful is that annybody shud want it to go on doin' what it does. Ye can't dazzle me with th' cotton-gin or th' snow-plow or th' ice-machine or th' inkybator. Says I to th' invintors an' th' machinists: 'Wurruk away,' I says, 'at forge an' anvil,' I says. 'Wurruk out ye'er devices iv human an' almost diabolical ingenooity,' I says. 'Hammer away in ye'er overhalls an' show what mechanical

science can do,' I says, 'an' bring th' finished pro-duct to me,' I says. 'If 'tis good an' I have th' money, I'll buy it,' I says. 'Ye'll find me at th' cool table near th' dure, an' ye'll reconize me because I'll have me finger in th' air signalin' th' kellner,' says I.

"An' there ye ar-re. There ar-re no wondhers iv science, or if there ar-re anny they're too wondherful to be undhershtud be anny wan but those wurrukin' at thim f'r two dollars a day. I know they tell me that at th' Pan-American show in th' city iv Buffalo th' ilicthric light is made be Niag'ra Falls. Between you an' me, Hinnissy, I don't believe wan wurrud iv it. It don't stand to reason. What goes over thim falls? Wather. An' how in th' wurruld can wather make lights? Now, if 'twas karosene! But it's wather that in more civilized communities they put th' lights out with. But they tell ye they've harnessed th' falls to light th' fair an' iv'ry ton iv wather that goes roarin' down that catarack an' pours through th' rapids between miles iv smilin' hotels to th' sea, projooces wan oom iv ilicthricity. An oom, Hinnissy, is about th' equivalent iv a quart iv th' ilicthrical flood. Does that sound right? No, faith, it don't. I niver see Niag'ra Falls, but I don't like to think iv it as a lamp-lighter tearin' round with a laddher an' a little torch. I don't believe in makin' light iv th' falls. Ye heerd th' joke. 'Tis mine, Hinnissy. Others made it befure me, but I made it las'. Th' las' man that makes a joke owns it. That's why me frind, Chancy Depoo, is such a humorist.

"An' I don't care how th' lights ar-re made annyhow, whether be th' wather that r-runs over th' falls or be a man with a monkey-wrench in a power-house. What I'd like to see is th' light whin it's made. Hogan seen it, an' he says it makes th' moon look like a dark lanthern. They speak iv th' sun in Buffalo th' way a motorman on a trolley line wud shpeak iv a horse-car. 'Th' sun is settin' earlier,' says he to Connors, th' thruckman that was towin' him. 'Since th' fair begun,' says Connors, 'it hasn't showed afther eight o'clock. We seldom hear iv it nowadays. We set our clocks be th' risin' an' settin' iv th' lights.' Siv'ral people spoke to Hogan about th' lights. He says he thought Connors made thim be th' way he talked, but he come to th' con-clusion that all his frinds had lint thim to th' fair an' wud take thim home whin 'twas over

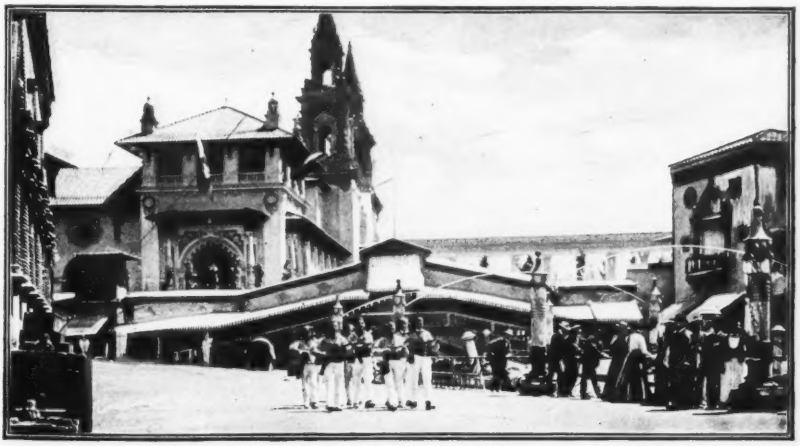
THE MAIN AVENUE IN THE MIDWAY.

A SIDE-SHOW IN THE STREETS OF CAIRO.

an' put thim up in th' back parlor."

"Hogan has been there, has he?"

"Faith, he has. He seen it all. He wint down there las' week, an' says he befure he left: 'A man,' he says, 'must keep abreast iv th' times,' he says, 'an' larn what mechanical science is doin' f'r th' wurruld,' he says. So he put his year's earnin's in his vest-pocket an' started f'r Buffalo. Martin Casey's daughter, th' school-teacher, th' wan that wears th' specs, wint th' nex' day. 'Tis a gr-reat iddycational exhibit,' says she. 'I'm inthrested in th' study iv pidigoogy.' 'Mary,' says I, 'what's that?' I says. 'Tis th' science iv teachin',' she says, 'an' I hear they've a gr-rand pidigoogical exhibit there,' she says. 'I'm takin' along me note-book an' I will pick up what bets Petzalootzi, th' gr-reat leader iv our pro-fission, has overlooked,' she says. She's a smart girl. She knows hardly a wurrud that ye'd undher-

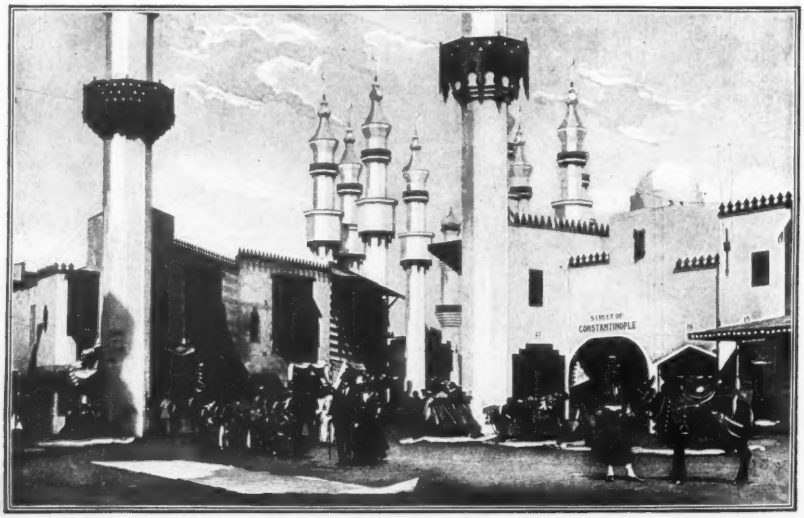


IN THE STREETS OF VENICE.

shtand, Hinnissy. 'Well,' says I, 'I hope 'twill make a betther third-grade teacher iv ye,' I says. 'But if ye miss Petzalootzi an' wandher into th' Indyan village be chanst,' says I, 'don't be worrid,' I says. 'A little knowledge iv th' Soos an' th' Arrypahoos an' their habits,' I says, 'is not a bad thing f'r anny wan that has to larn Chicago childher,' I says.

TRANSPORTATION IN THE STREETS OF CAIRO.

"Hogan come back yisterday an' he sat in this very chair an' tol' me about it. 'How was th' arts an' sciences?' says I. 'Fine,' says he. 'I tell ye th' wurruld is makin' gr-reat pro-gress. An' th' Midway! Well, don't say a wurrud.' 'Did ye go to th' Agaricoolchooral Buildin'?' says I. 'Well, no,' he says. 'I missed that. Connors was goin' to take me there whin we come fr'm th' bullfight, but I got so inthrested in th' sthruggle between man an' beast,' he says, 'an' time flew so fast that be th' time I got away th' punkins had gone to bed an' th' agaricoolchooral show was closed,' he says. 'But 'tis a fine buildin' on th' outside, an' th' lights is wondherful. Connors says there's twinty millyon candle-power iv lights on that buildin' alone an' he knows f'r 'twas him got Niag'ra Falls to do it,' he says. 'They was a fine show iv machinery?' says I. 'They say they hasn't been such a fine show iv machinery since th' shovel was in-



A CORNER OF THE STREETS OF CAIRO.

vinted,' says he. 'I was on me way there whin I thought I'd take a look in on th' Sthreets iv Cairo, an' who d'ye think I see there? Ye'll niver guess. Well, 'twas little Ahmed ah Mamed. Ye raymimber th' small naygur that dhrove th' roan donkey whin we had a fair? Yes, sir, he was there an' he showed me th' whole thing. Not a wurrud, mind ye, to anny iv me fam'ly. So whin I come back to see th' machinery, th' dure was locked, an' I had to catch th' las' car. Oh, but 'tis a handsome buildin'. Connors tells me th' lights——' 'Niver mind that,' says I. 'How about th' mines, th' commercial display, th' good ol' stacks iv canned stamps an' ol' docymints that th' United States govermint is thryin' to enlighten th' likes iv ye with? Did you see thim?' 'I meant to,' says he. 'I was on me way fr'm a jug iv malt in an Ol' German Village where there's a fellow plays a picoloo in a way to make th' man that made it like it, an' I intinded to have a look at all thim what-d'ye-may-call-ims whin a la-ad with a migaphone says right in me ear: "I mean you. This way, please. Raymimber ye may niver have another chanst. They'se no delay an' no waitin'." An' says I to mesilf: "He knows me. Connors tol' him how I stand at home. I can't rayfuse th' honor." An' I wint in. An' here I am.' 'Ye mus' be an intillechool jint be this time,' I says. 'I know more thin I did,' says he, 'an' thim lights iv Connors'——' 'Did ye see Mary Casey?' says I. 'I did,' says he. 'Where?' says I. 'On a camel,' says he. 'Was she with Petzalootzi?' says I. 'With who?' says he. 'With Petzalootzi, th' gr-reat master iv th' science iv pidigoogy,' says I. 'No,' says he. 'I think his name is Flannigan. He used to wurruk f'r th' Mitchigan Cinthral,' says he.

"An' there ye ar-re again, Hinnissy. Ye can believe me or not, but they're all alike, man, woman or child. If I iver give a wurruld's fair, they won't be much to it but th' Midway. Th' principal buildin's will be occypied be th' Sthreets iv Cairo, th' Indyan village, th' shoot-th'-shoots, th' loop-th'-loops an' similar exhibits iv what man is doin' not f'r mankind but f'r himsilf. They'll all be in th' main sthreet, an' they'll be bands playin' an' tom-toms beatin' an' Egyptian girls dancin' an' Indyans howlin' an' men hootin' through migaphones fr'm th' minyit ye hand ye'er ticket to th' chopper at th' big gate. An' away over in a corner iv th' gr-round in a buildin' as small an' obscure as Alice Benbolt's grave, where no man'd find it onless they thripped over it on their way to th' merry-go-round, I'd put all th' arts an' sciences I cud pack into it an' lave th' r-rest outside where they cud wurruk. F'r a wurruld's fair is no rollin'-mills. If it

A STRIKING BUILDING ON THE MIDWAY.

IN THE PHILIPPINE VILLAGE.

was, ye'd be paid f'r goin' there. 'Tis not th' rollin'-mills an' 'tis not a school or a machine-shop or a grocery-store. 'Tis a big circus with manny rings. An' that's what it ought to be."

CAIRO TYPES.

"Why do they get thim up?" asked Mr. Hinnissy.

"They get thim up f'r th' advancement iv thought an' th' gate receipts," said Mr. Dooley. "But they're run f'r a good time an' a deffycit.

"They tell me th' wan we had give an impetus, whativer that is, to archytecture that it hasn't raycovered fr'm yet. After th' fair, ivrybody that was annybody had to go to live in a Greek temple with an Eyetalian roof an' bay-windows. But thim that wasn't annybody has f'rgot all about th' wooden island an' th' Coort iv Honor, an' whin ye say annything to thim about th' fair, they say: 'D'ye raymimber th' night I see ye on th' Midway? Oh, my!' "

"D'ye think, Mr. Dooley, they do a city anny good?" asked the practical Mr. Hinnissy.

"They may not do th' city anny good, but they're good f'r th' people in it," said Mr. Dooley.

"An' they do th' city good in wan way. If a city has wan fair, it niver has to have another."

THE ILLUMINATION OF THE ELECTRIC TOWER.

SOME NOVELTIES AT BUFFALO FAIR.

By Julian Hawthorne.

THE Exposition at Buffalo, like that at Chicago, and at Paris and other places, is in a measure prophetic, or—what is perhaps the same thing—optimistic. It shows us what is, of course, to begin with; but in addition to that it glows with the promise of things to be. Here are the products of the industry and invention of many peoples; we should find them in the places whence they came, were we to seek them there, but we should not find them there as they appear here. Here,

all the dross, the superfluities, the mistakes, are left out; the pure, effective residue alone remains. Here, too, are the order and logic of arrangement which we do not yet discover in every-day conditions; the reasoning mind of man prevails in every detail, and organizes all things, as the frame of man himself is organized. This is prophecy and optimism, for the time will surely come when heaven's first law will rule our daily lives and deeds, and the world we live in will be like noble words set to a mighty music. All the world will then be an Exposition—an exposition of the intelligence and magnanimity of mankind made visible. What we effect now on a small scale we shall accomplish then on the scale universal, and not so much by painful study as spontaneously. Our environment will be harmoniously disposed, because we ourselves shall be at one in heart and spirit.

THE MINES BUILDING FROM THE TRIUMPHAL BRIDGE.

This is the lesson of all expositions; but the Pan-American has likewise an idea all its own, new and stimulating—the idea of a united Western continent. This idea you see symbolized and expounded everywhere. It flutters from every gable and pinnacle in the tricolored flag, with its stars of north and south, and its red, white and blue; and it is embodied in every building and exhibit. It rises heavenward in the lovely Tower of Electricity, dominating the entire vast expanse of the inclosure, and unifying, as it does, all the subordinate structures into a single thought of mutual association and energy. This Tower, too, being dedicated to light, which is, spiritually interpreted, the genius of our age, indicates that all Americans shall be one in virtue of the inevitable influence of the understanding, that enlightened economic perception which lights the way for the warmth and substance of mutual affection and trust. The Tower of Light is the tower of peace and good will, whose turrets already appear above the horizons of the future. Science, discovery and industry are the great, immortal democrats, whose teaching shall wipe out political boundaries, and heal national jealousies, and sweep hitherto hostile units into the great current of a commonweal. Monarchs and oligarchies cannot prevail against them, for they find a place for every man and bring him to it in freedom and self-respect. We shall have all America united; and what America becomes is the prototype of what the world must be.

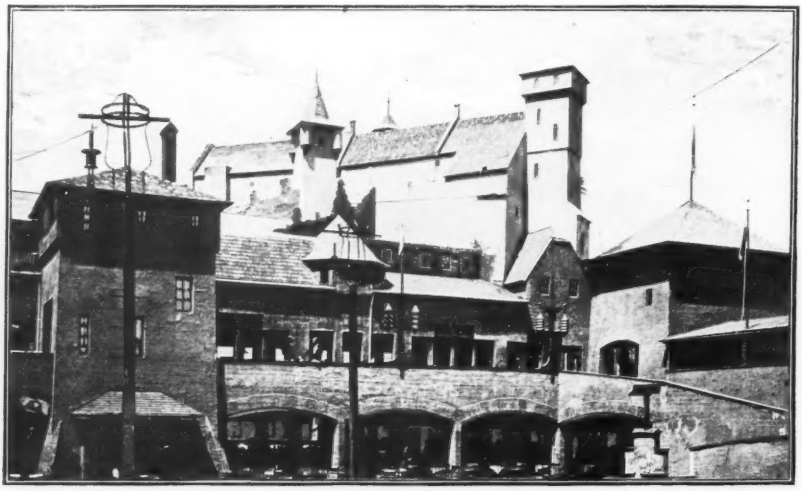
Pan-America is the fundamental novelty at Buffalo; but there are numberless subordinate ones erected upon that foundation. The schemes of architecture and of coloring have something fresh and unprecedented

to say to us. They have been studied out by artists of brains and imagination, and many of the results are almost too esoteric to be at once apparent to the ordinary passer-by. Color is the music of the eye, and is used here to indicate the same kind of ideas which music inculcates. There is the heavy richness of the elemental, and the airy splendor of the elemental sublimated by the intelligence of man. Gold in the ore, the diamond in its matrix, cotton and wool in the field and pasture, appear dim and opaque and rude; but how they shine and sparkle and glow and assume splendor when gemsmith and goldsmith and dyer and weaver have had their day with them! This you may read, if you will, in the tints of the buildings which surround that matchless area in which the blue lagoons gleam and fountains gush and murmur. And the immortal war of man with nature—that which we call war, though in truth it is the path toward peace, toward the at-one-ment of man with his surroundings, his discovery of his unity with his environment, his slow but sure initiation into the loving secrets of the great Mother, who yearns to impart her gifts more than we yearn to receive them, and who wisely withholds the full revelation and endowment until her child is fully prepared to make wise use of them—in the struggle of these noble figures in the grip of circumstance you may, if you will, recognize a hint of this beneficent war of the Titan, still in his swaddling-clothes, but with the light of a heroic future breaking over his features. His seeming antagonist is in the deeper sense his most tender and inspiring friend, who wrestles with him as the angel wrestled with Jacob from the going-down to the uprising of the sun, but who gave him the blessing at last, and whose very opposition but strung the other's sinews and hardened his muscles for the victory. Yonder, on the very tipmost pinnacle of the Tower, hovers the golden Goddess of Light, with the gift in her uplifted hand!

THE TRIUMPHAL BRIDGE.

In the forms and composition of the architecture are to be detected other hints, breaking at times into almost open speech. Technically it is a liberal rendering of the Spanish Renaissance; but it symbolizes our welcome to the genius of the Latins to mingle their strain with the genius of the Anglo-Saxon. The problem of an Ameri-

can architecture has never yet been fully solved; but the full American is the most cosmopolitan man—the sum of all races, the union of all forms of talent and gift. As he is, so must his habitation be: not a crude and unprecedented novelty, but a gracious meeting and mingling of the best and purest of all foregoing types; yet, withal, that very mingling is a greater novelty than any other, and establishes for the elements that compose it a fresh and mighty individuality. So, in man is comprised the entire kingdom of the animals; but man, rising above all the rest, is himself still more than he is cousin to any other.



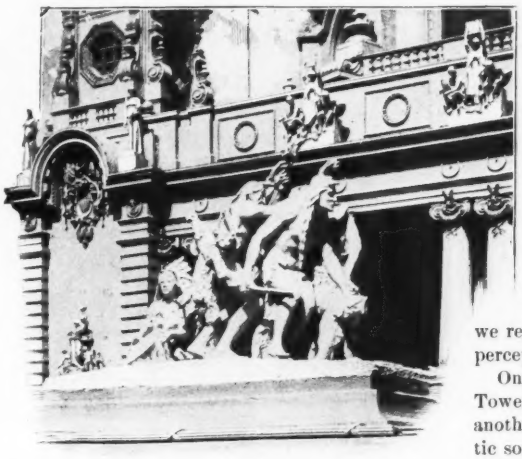
ALT NÜRNBERG.

Opinions may differ as to whether, in absolute architectural value, the buildings of the Buffalo Exposition, with their changing tints, are or are not superior to the white creations of the Chicago Fair. We may array the testimony of Egypt, India, Japan, Venice, against the snowy simplicity of the Acropolis at Athens. But, be that discussion brought to what issue it may, there can be little doubt, I think, that in point of arrangement or disposition the buildings at Buffalo enjoy a manifest advantage. Standing on the Triumphal Bridge, at the lower entrance of the grounds, between the four superb towers, or pillars, surmounted each by its uprearing steed with the signaling figure on its back, the eye takes in at one glance every principal feature of the Exposition. All the vast buildings meet and face one another across the wide expanse of this stupendous Court of Fountains, which exposes its level acres to the bright sunshine of the northern Empire State. The shaft of the Electric Tower, at the further extremity of this interminable space, assumes a magical aspect, as if it had been summoned forth by the genius of our united people, and might fade away at evening like the western clouds that adorn with their splendor the setting sun. The light and shadow play over it, and it makes a tender nuptial with the sky and seems to palpitate with beautiful life. It is difficult to overestimate the value of this ordered marshaling of the component elements of the picture; it enters the mind and memory as a whole, and maintains its place there without effort. And though, in the process of exploration, we may pace many a league, and go home footweary at last, yet we altogether miss that most wearisome form of weariness which consists in losing our sense of locality and direction, and wandering hopeless, as we too often did at Chicago, of ever comprehending where we were or where we wanted to be. Moreover, when fatigue overtakes us, we can at any moment find rest and variety of impression; we may turn from the accumulations of industry

and ingenuity to the old, immortal refreshment of natural beauty. One of the leading novelties of this Exposition is the great number of trees which relieve the eye at every point. At the sides of the Esplanade are Sunken Gardens, lined with trees, beneath which hospitable benches invite us to rest and listen to the fountain music. Some of these inclosed waters are surrounded with reeds and other tall grasses, and on their bosom float water-lilies. Love-making is no new thing in the world, fortunately; but it is far from common that so many ideal spots for making it should be provided as may be found here. The lovely statues of gods and goddesses look down approvingly upon the youth and maiden, and the murmur of the falling waters fills the intervals of their speech. In the vastness, the great crowd passes them by, and notes them not. From afar, yet always near enough, the strains of human music are wafted to their ears; you can find no nook here so remote but the throb of melody will search it out, if you listen. Surely good fortune should attend the marriages which find their beginnings in circumstances so propitious.

AGRICULTURE.

Of the subsidiary novelties, the fountain which bursts forth from the base of the Electric Tower is the most striking. The Tower itself must be near four hundred feet in height; for half its height upward it is four-square, thence diminishing stage by stage, in pillared intervals, to the pinnacle and the goddess at the summit. The lower half has a broad panel of Niagara green (a hue which we find often repeated throughout the Exposition) extending down its center; but this is interrupted at a height of about seventy feet from the base by an exquisite pillared colonnade, which curves forward like inviting arms, each arm terminating in a sculptured pavilion. In the center of this arcade, and out of a green niche in the body of the Tower, gushes forth in a huge turmoil of snow-white foam an endless volume of water, and it falls in glorious cascades over the terraces that lead downward to the basin. A sort of miracle seems to have been accomplished, as when Moses smote the rock for the thirsty Israelites. This everlasting outgush redeems with its freshness and exuberance the heat of the sun and the weariness of the distances. From every point of view it is visible, and the soft thunder of its down-tumbling rejoices the soul. It reminds us of the propinquity of Niagara itself, and makes the stable architecture of its environment vibrate with living energy. Often and often do we return to it, and always with a new perception of felicity and power.



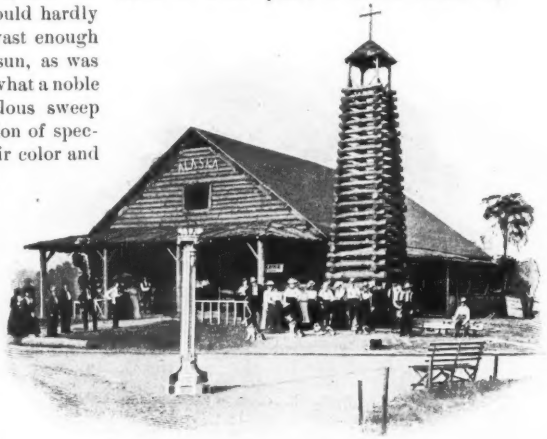
THE SAVAGE AGE.

On the right, diagonally behind the Tower, rise the walls of the Stadium, another innovation; it is a sort of gigantic son of the Madison Square Garden, with its hat off. It recalls a Greek

A MIDWAY FREAK—THE HOUSE UPSIDE DOWN.

original, such as the athletes, physical and intellectual, were wont to meet in when Greece was glorious, to struggle for the crown of honor. But I doubt whether Greece or Rome ever built a circus so gigantic as this. The running-track covers a circuit of a quarter of a mile: and the entire structure cannot be less than nine hundred feet in diameter. From the ground, slanting backward and upward, tier above tier, rise the circling benches, seating twelve thousand persons, without account of what the floor-space might accommodate. But the floor, of course, is the green turf, and the roof is the blue sky, and it would hardly be possible to swing a canvas vast enough to screen the interior from the sun, as was done of old in the Coliseum. But what a noble spectacle must be this stupendous sweep of benches filled with a population of spectators, with their movement, their color and their uproar of multitudinous voices! What sight magnificent enough to correspond with such a gathering could be devised? Some greater Barnum, with the humbug left out, some mightier Nero, with the inhumanity purged away, some nobler Pericles, with a world at his command, would be needed for such an enterprise. Indeed, the time is hardly yet come when we can put this Stadium to a fitting use; but, like the rest of the conception of which it is a part, it must be regarded in its prophetic aspect. Here should meet in fraternal rivalry the competitors of a continent, in an emulation and a splendor befitting their resources and attainments.

Beyond a certain advance in electrical inventions and applications, realized during the last few years, there is little that is actually new among the various things and processes shown in the Exposition buildings at Buffalo; we see here what we saw at Chicago, though the arrangement is superior and the selection of exhibits more careful and reticent. In completeness, the United States Building stands first, and it ought to be made permanent, for it contains within itself a liberal education offered to the eye; months might well be spent in studying this collection alone. To this unimaginable affluence of resource and achievement have we arrived since the time, less than three centuries ago, when the sad-garbed Pilgrims landed at Plymouth Rock, or the Cavaliers made harbor at Jamestown. But these, and the other exhibits, I must leave to other pens; it comes within my



THE ALASKA BUILDING.

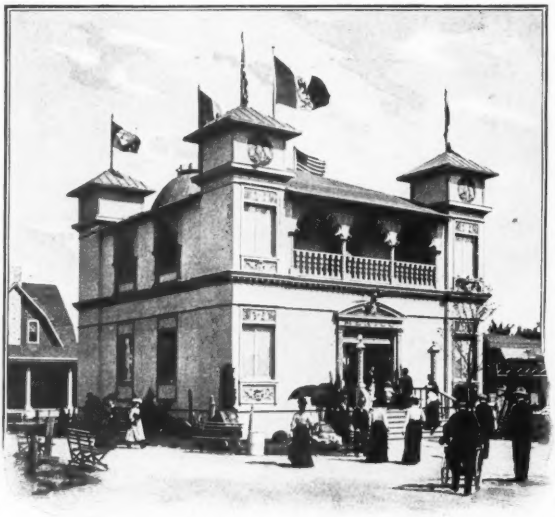
scope only to mention the Acetylene Building, which, as evening comes on, shines and twinkles all over with a pure white light, more brilliant than the Edison incandescent light itself, and making the latter look orange by contrast. It is an appurtenance more exactly of the Midway exhibitions than of the Exposition proper. Nor will I linger over the Life-Saving exhibition on the lake shore at the extreme southern limit of the grounds; it is thrillingly interesting, but it belongs in a class by itself. We must spend our remaining time in the Midway, which contains many novelties, in addition to the old Midway flavor and character with which we became so fondly familiar at Chicago. Man's works are shown in the Exposition, but man himself occupies the Midway in all his varieties, and the wonder and fascination of him still surpasses in its own way anything that he is able to produce.

THE OHIO BUILDING.

The Midway, instead of stretching away into a region apart, as at Chicago, winds itself round two sides of the Buffalo Exposition, and is immediately accessible from many points of the Exposition grounds. This would seem to promise a larger attendance; but on the other hand it may make it a less constant quantity; for at Chicago, once you got to the Midway, you felt almost compelled to stay there; whereas here you may pass out and in so readily that your stay is dependent on the whim of the moment. Be that as it may, the whim is likely to be in favor of remaining. The concessionaires, as we are constrained for lack of a better name to call them, have studied their part diligently during the past eight years, and show the effect in the quality and inventiveness of their attractions. The Cairo Street is, of course, nearly unaltered; it originally contained all that could be brought from the East except the buildings themselves, which were represented. At this Exposition it is an exotic, a guest, invited on account of its inimitable charm; with Pan-America it has no organic connection. Here are the camels, and the elephant, and the Bedouins, and the dancing-girls, as we know them of old; at least two charming Fatimas, more beautiful than ever; and the booths with their glittering and glowing display. Here rise once more the minarets; and the mesherabie still decorate the crabbed house-fronts. And yet I cannot say that Cairo Street seems to me as fascinating as it did years ago; perhaps the difference may be that we have become mutually accustomed to each other, and the power to produce charm and the suscepti-

bility to it have both diminished. Certainly I should find it hard to put my finger on any specific deficiency; and on the other hand there are undoubtedly some improvements. But we seek novelty, and let us therefore make the Trip to the Moon.

Readers of THE COSMOPOLITAN, to be sure, recently made this trip in the company of Mr. Wells; and I suspect that our present entertainer may have been present on that occasion; at all events, there are several minor features in what he shows us which confirm Mr. Wells' report. I noticed a mooncalf lurking clumsily amidst the rocks; and the vegetation is of the fungous order; while the Selenites themselves have the spiked head-dress which the former explorer describes, and something resembling their twittering speech. These creatures, too, habitually dwell in vast caverns beneath the planet's surface. But if we find details similar to those portrayed by Mr. Wells, what else should we expect?—unless we accuse him of inaccuracy! The procedure is as follows:—

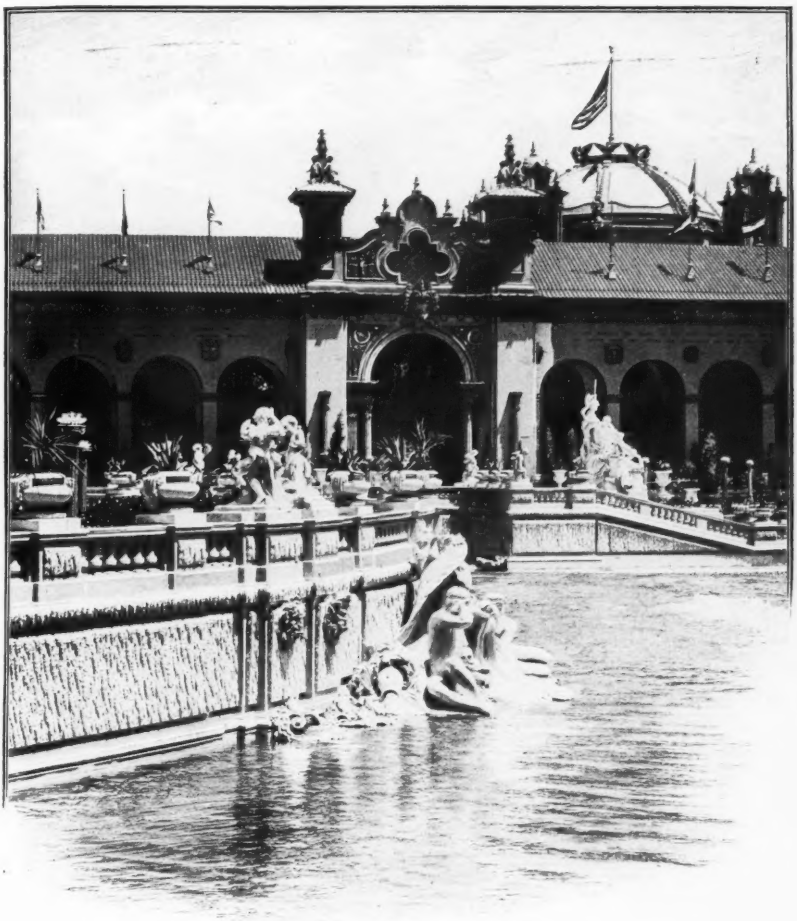


THE MEXICAN GOVERNMENT BUILDING.

The prospective voyagers take their seats in a darkened auditorium, where the guide expresses to them in pregnant phrases the extraordinary nature of the adventure on which they are embarking. Then, at the back of the stage, in a starlit sky, the aërial ship in which the voyage is to be made is seen descending earthward. It passes out of sight; and the inexperienced suppose that now the scene will change, and that we, remaining in our seats, will be carried in imagination only through the various chapters of the journey. But the order given is, "Leave your seats and follow me!"

Out we troop accordingly, in the glimmering dusk, and pass through a passage and over a gangway to other seats on the deck of the aërial ship itself. Yes, verily, there we sit, while the marvelous vessel waves its wings, and far, far below us, with its electric lights shining, lies the terrestrial city of Buffalo. The broad, batlike wings wave more powerfully, till at length we seem to leave our earthly moorings and to sail steadily but swiftly through the depths of infinite space. In a few moments we find ourselves passing through a thundercloud, and the lightning flashes round us, and the thunder rolls, the wind howls, and the ship sways in it. But our speed is immense, and anon we have risen above the clouds, and now before us, beneath us, is revealed another planet—actually the moon herself! We descend rapidly, and in a few moments, with a slight jar, we have come to anchor on its surface. The order comes to disembark.

Well, here we are positively treading on the rugged surface of Luna, and, amidst strange vegetation and unfamiliar objects, we plunge down a devious path into the interior. The little Selenites have perceived our advent, and run before us, with queer twitterings, marshaling our way; they are hardly half the average stature of earthly men, and are oddly misshapen. Wonderful blue and crimson lights flash and glow upon us, indescribable forms as-



ONE OF THE MANY BEAUTIFUL BASINS.

tound our eyes, the grotesque splendor of our surroundings increases with every step. Erelong we find ourselves in the central crypts of the planet, with huge jewels and masses of gold and weird vistas and abysses all about us. In a great cavern, gorgeously illuminated, we find the monarch of the Selenites, attended by his subjects, who, in our honor, perform a moon-dance. Some other ceremonies occur, and then, by a short cut, following the voice of our conductor—lo! we are on our own old earth again, and filing forth into the familiar daylight of the Midway!

I have given this narrative in detail, because it is typical of several experiences which we are to undergo during our exploration of the Buffalo Exposition marvels. They are elaborate illusions, ingeniously carried out, so that instead of viewing a performance on a stage, we are ourselves participants in the scene. Thus in "Darkness and Dawn," after sitting awhile at tables in a darkened room, we discover that the tables are in fact coffins, tenanted by uneasy ghosts, who groan and talk and rattle their coffin-lids; we are invited to the regions of Tophet, and in order to pay

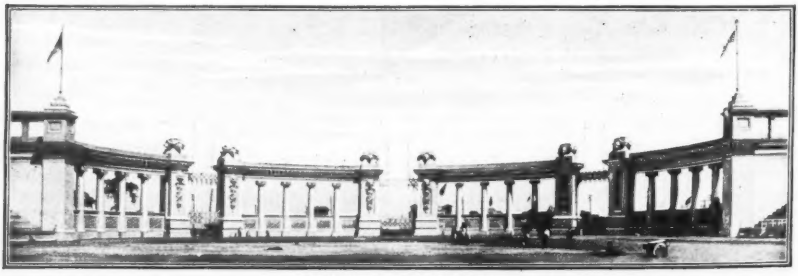
our passage must sacrifice one of our number to the King of the Shades. He mounts the stage, enters a coffin placed upright there, and before our eyes undergoes a ghastly transformation from flesh and blood to a fleshless skeleton. Then we arise and follow our guide below; an elevator carries us swiftly to an immense depth in the bowels of the earth; there we wander through hideous caverns; we see Charon with his boat on the Styx; we enter the infernal regions. Fiends in awful shapes haunt our path; the groans of tormented spirits salute our ears, and we behold their tortures. At length we encounter the Arch-Fiend himself; but just as we have given up all hope, the environment undergoes a change for the better; we are now approaching paradise; and stand amazed in the midst of a glorious transformation-scene. Thus we are gently restored to our own earthly habitation, safe and sound after an hour in hell.

A COMFORTABLE WAY OF SIGHT-SEEING.

This kind of entertainment is new, and obviously it can be indefinitely extended and improved. By calling in the resources of science, positive illusions may be produced, and the painted pasteboard and colored lights, and the rest of the paraphernalia, can be so refined that little or no exercise of imagination will be needed to help out the art of the showman. The keynote of the idea is the active coöperation of the spectator in his own entertainment; and there is hardly a limit to the possibilities in this direction.

The "House Upside Down," imported hither from Paris, has been greatly improved in transit; but I lack space to go into details. The Filipino Village shows our fellow-citizens on the other side of the earth living in their native manner; "Darkest Africa," a most admirable reproduction of Central African life, presents real negroes, in singular contrast with the imported article with which we are amply familiar. There is an "Infant Incubator," with tiny live babies being gently baked in neat plate-glass ovens; and there are numberless features recalling things we saw at Chicago.

Before going home, we return to the Esplanade, and there behold by far the most superb and inspiring illumination of the Tower and buildings that I have ever seen. But this is out of my assigned province. It is a fitting conclusion to an experience altogether delightful and desirable.



AN END OF THE STADIUM.

ORGANIZATION AS APPLIED TO ART.

By C. Y. Turner.

AT a joint committee meeting held at the National Arts Club some time in March, 1900, Mr. John M. Carrere, Chairman of the Board of Architects, explained the wishes of the Pan-American Exposition Company and those of the architects regarding the sculptural adornment and proposed coloring of the exhibition. He explained the plan of the grounds and buildings, waterways, et cetera, and requested that the sculptors and painters select the committee or person to take charge of the sculpture and the coloring of the Exposition. He asked that the painters and sculptors collaborate with the architects toward the beautifying of the Exposition. This was a long step in advance toward the development of the allied arts, and personally I hailed it with great delight, for it seemed to me that an opportunity occurred to place the painters and sculptors in a proper relation of complete harmony with the architects.

THE FOUNTAIN OF ABUNDANCE.

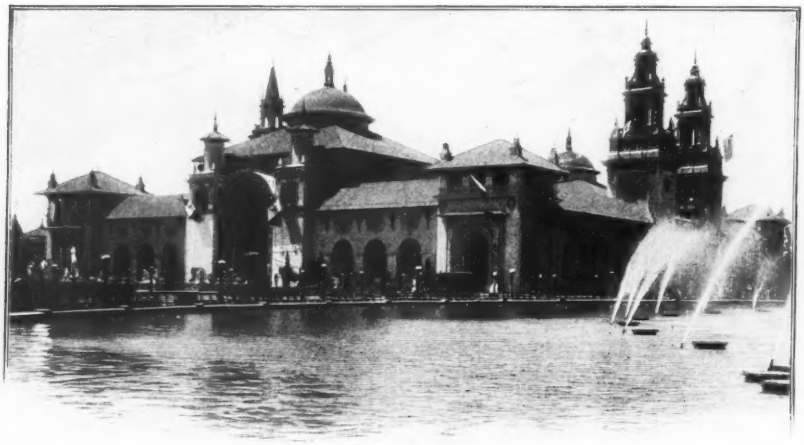
At a meeting of the National Society of Mural Painters which shortly followed this, I was chosen as the one they thought capable of carrying out the coloring of the exhibition. This selection was forwarded to Mr. Carrere, and in due course, Mr. Bitter and myself were appointed as the persons to take charge of the sculpture and the coloring.

At a later meeting of the Board of Architects held in Buffalo, the question of color was brought up and fully discussed. Mr. Peabody had carefully planned and colored the drawings for the Horticulture Group, and brought to Buffalo a number of small models of portions of these buildings which were colored in a fashion that seemed to him a proper treatment. I should say here that it had become the general opinion that the Exposition buildings should be designed to receive color, and the style of architecture which at that early period was mentioned as the most fitting for the purpose, the Spanish Renaissance, was in the minds of most of them the most suitable style. At a later period this was changed to Free Renaissance, which, of course, permitted the introduction of Italian, German and French Renaissance.

The desire of the Exposition Company and the Board of Architects was to color the Exposition buildings highly, and having in mind the Spanish-American feature, I was prepared to say that I thought the buildings should be treated in some shade of warm white for the flat surfaces and the

ornamentation should be highly enriched. The Board of Architects adopted this suggestion, and added to it that I should carry on the coloring of the Exposition in consultation with the individual architect. With this idea in view, returning to New York, I took up the matter and laid out a general plan for coloring the Exposition.

The buildings have hip-roofs at an angle of thirty degrees, covered with tile. All the walls and other surfaces are of staff and plaster, therefore there were three great elements to deal with—the sky, which would be blue, with floating clouds; the buildings, with red roofs and warm-gray walls; and the earth, with the grass, trees, statuary, landings, et cetera, of green and white.



THE MACHINERY AND TRANSPORTATION BUILDING.

My first step was to make a small sketch in color, and then I took an enlargement of the bird's-eye view and colored it. I was convinced that something larger and more in detail, to arrange the scheme intelligently, was needed. Therefore I applied for permission to have made a model of the various buildings to scale. In due course of time this was accomplished, and there was executed and erected in my studio a model which covered a space of twelve by sixteen feet. This model was made to scale of one-sixteenth inch to the foot, and all the buildings were colored and changed as was deemed necessary until a harmonious result was attained.

During the preparation of my first sketches, I attended a meeting given by the Sculptors' Society, which had for its object an explanation of the manner in which they would suggest that the buildings and grounds should be treated sculpturally, and Mr. Bitter outlined his general plan, which was very interesting and ingenious.

Mr. Bitter believed the Exposition should be a lesson for the public, and that the sculpture upon the buildings should convey as far as possible the purpose for which each building was erected and suggest the character of exhibits which it would contain. He proposed to treat the sculptural groups about the Government Building in such a manner as to suggest man in his primitive state, the Horticulture Group portraying the natural resources of the earth. Here the battle of life, which man has ever waged with the elements, begins. We find, as we progress up the grounds, the result of his labors in the Machinery and Transportation and Electricity Buildings shown on one side, and Liberal Arts and Agriculture on the other suggesting the result of his struggles. The Restaurant and the entrances to the Midway and the Stadium suggest amusements and games. The Electric Tower, representing the crowning achievement of man, is dedicated to the great waterways and the power of Niagara that is utilized to generate the current which runs the Ex-

position. Without going into the detail of Mr. Bitter's plan, it seemed to me a very logical and proper treatment of the Exposition, and it was wise for me to pursue a similar course in the color treatment, so that I might in this way carry out a general scheme in harmony with the plan of the grounds, buildings and sculptural arrangement. Taking it for granted then that as we enter the grounds from the park through the forecourt, the causeway bids welcome to the visitors and the countries in color the same thought which Mr. Bitter was following in sculpture.

Since I wished in some way to emphasize the great power which was being used to run the Exposition, the beautiful emerald-green hue of the water as it curls over the crest of Niagara Falls seemed to me a most fitting note to carry through the Exposition, and I therefore adopted it and this color is found on some portion of every building.

In the Tower I have given it marked

THE TEMPLE OF MUSIC.

taking part in the Exposition, and we then come upon the elementary conditions, that is, the earliest state of man suggested on one side and primitive nature on the other, I concluded that the strongest primary colors should be applied here; as we advance up the grounds, the colors should be more refined and less contrasting, and the Tower, which is to suggest the triumph of man's achievement, should be the lightest and most delicate in color.

Thus it was my effort to try to carry out emphasis, and have made the general scheme here ivory-white, green and gold.

This is my general plan or scheme, and my wish has been to do all that was possible to express this idea and be in harmony with what I believed the architects and sculptors wished to say through their respective arts.

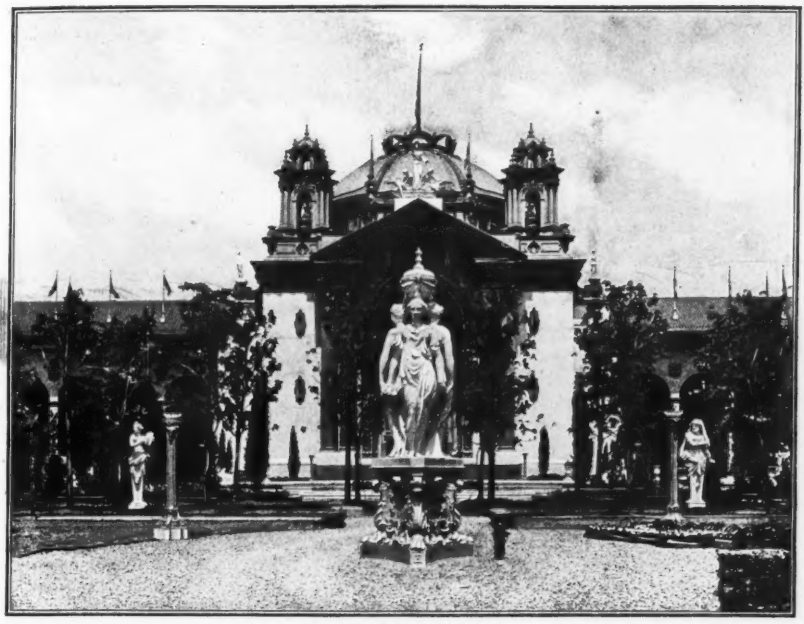
The small model when colored could give only the tints of the body of the buildings and the roofs, with some slight suggestion of towers and pinnacles, doorways, et

cetera. It was necessary, therefore, to be more explicit. The drawings of each building were taken up and colored in detail, first the elevations and then the great doorways, towers, corner pavilions, entrances, finials, and all other parts which might be treated.

The Board of Architects as well as the Exposition Company desired that the buildings should be treated in brilliant colors and that a suggestion of Spanish treatment of architecture in coloring should be given. I therefore looked this matter up and tried to familiarize myself with the manner of their treatment, and started out with the idea to pursue this course and produce a result which should resemble, as nearly as might be, work of that period.

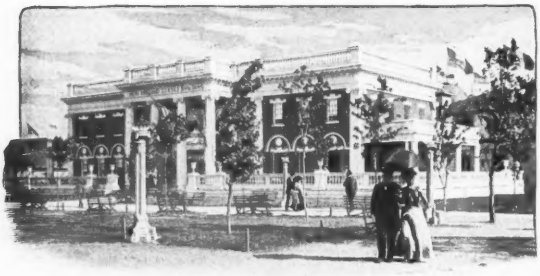
The Horticulture Group has orange as a basis for the color of the body of the building. On the Government Building a warm yellow is used for the plain surfaces. For the Temple of Music I have used red, quite pure, as the foundation color; for Ethnology, a golden yellow. On the Machinery and Transportation Building, green is the basis; and opposite it across the Court, the Liberal Arts Building is a warm gray. The Electricity and Agriculture Buildings are in different shades of light yellow; while the Restaurant and entrances to the Stadium have a French gray as the basis, with a lighter shade of the same tint on the Propylæa. In the Horticulture Group I have used blue and white largely in the ornamental portions of the panels, pilasters, spandrels, et cetera, relieved now and again by brighter shades of rose and deep yellow. The Government Building has mild gray for the structural portions to relieve the yellow, and in this building, where it is possible, the green note is introduced in the sashes and doors, and blue on the dome and gold on the smaller domes—blue-green on the dome of the Music Hall, and repeated again on the Ethnology Building. On the Machinery and Transportation Building, red, yellow and green are introduced in the great doorways and corner pavilions, and also distributed through the towers, while blue and gold play a large part in the detail work of the Liberal Arts Building, especially the ceilings of the colonnades and East and West entrances, as well as in the great pediments of the North and South entrances. The yellow of the Electricity Building is relieved by gray trimmings and green

THE ELECTRICITY BUILDING.



THE COURT OF CYPRESSES.

doorways elaborately enriched in their ornament with delicate shades of the prevailing tones used throughout the Exposition. The Agriculture Building is warmer, and there are blue, yellow and ivory, with stronger notes of red and green, in the entrances. The Restaurants are ivory and French gray, with green sashes, and minarets and pinnacles tipped with gold. The Propylæa, which curves across the north end of the grounds, has a wide, open arcade, and its panels are enriched with brilliant red surrounding the white statues. The panels above are bright yellow, while the ceilings are blue and the trellis above is made a strong violet hue. Violet occurs again at the arched entrances. The Railway Transportation Building is in French gray with a green roof; while the Stadium, one of the most imposing buildings of the fair, is light ivory-gray with pale blue-green sash and doors. The Electric Tower is very light ivory, and is enriched in the capitals, brackets, finials, stars, pinnacles, et cetera with gold, and crowned with a gilded figure of the Goddess of Light. The panels have the brightest fresh blue-green we could make, suggesting the water as it curves over the crest at Niagara. The statuary throughout the grounds is treated in pure white, and it is my belief that it is a pleasant contrast and makes the color-scheme more apparent. Lamps and urns are treated as green bronze, verte antique. Flagstaff bases are in similar vein, except the greater ones, which harmonize with the buildings in their immediate neighborhood—cool at the north end of the grounds, ivory and green; and red, yellow and blue at the south. The great piers at the causeway are of a soft, warm gray, suggesting cane, stone, or some such kindred material, with bronze at intervals. The pergolas are treated in bright colors, the lower third of the columns being orange or red and the upper two-thirds a light stone color, with brown beams, blue ceiling and green roofs. The notes of green, gold, ivory, blue and red are distributed throughout all the buildings so that it can be said, as some one remarked to me, "I see you are using the Pan-American colors on the buildings—red, white, blue, green and yellow." The buildings in the Midway, or Vanity Fair, are treated with more liberty, but similar in general tone of color



THE NEW ENGLAND STATES BUILDING.

to the main portion of the Exposition. The State Buildings and other concessions about the grounds have considerable latitude in treatment, held in check only when something too startling is suggested. The Woman's Building, which is a remodeled country club-house, has been treated in soft, quiet green. All the canal banks, bridges and embankments have soft gray stone color, with little or no enrichment other than the architectural design.

Of course, many flags and banners are distributed on the buildings of the countries taking part in the Exposition, and add gaiety and liveliness to the scene. Awnings at the landings and pergolas are treated with bright striped goods to harmonize with the buildings adjoining, and floats, gondolas, et cetera have all received their colors.

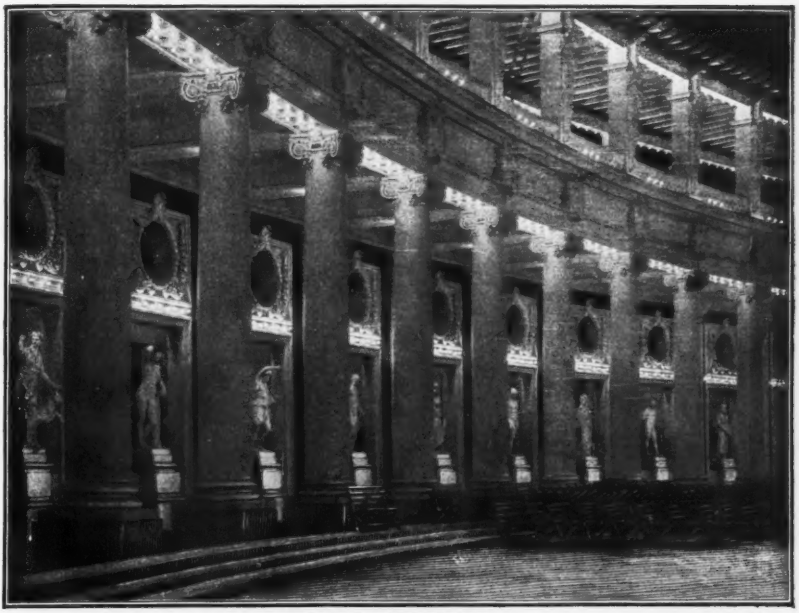
This is the first time that a general scheme of color has been undertaken and carried out in any exposition, and it is our sincere hope and belief that the result warrants the time, labor and money expended upon it, and gives great pleasure and will influence similar work in the future.

The interior decorations conform in general plan to the exterior coloring of the buildings, and relate so far as possible to the exhibits contained therein.

It was believed that a much more attractive treatment of the interior decorations might be carried out than that which has been the custom heretofore in exhibitions, by the use of banners, bunting, cartouches and tapestries, and making use of portions of the exhibits. The general color-scheme in each case was carried out in harmony with the exterior coloring.

The Machinery and Transportation Building is decorated in two shades of yellow. A great number of bright-colored flags are so used that the effect of the building is kept in gold and red of varying degrees. The yellow draperies are attached to the beams which bound the skylight, and are so drawn back to a level with the eaves as to make long, sweeping lines running in the direction of the roof without concealing the construction of the rafters and trusses. Through the center, attached to the ridgepole of the skylight are large clusters of colored buntings arranged like great chandeliers. These

A GARDEN NEAR THE TRIUMPHAL BRIDGE.



PART OF THE PROPYLÆA.

continue around the entire building, making a brilliant row of color which emphasizes and echoes the many tints among the exhibits. At a number of places above the twenty-foot line are placed large tapestry paintings that represent materials, and scenes upon railroads and waterways and in factories, relating to those exhibits which are beneath them, forming a series of decorations upon the wall surface and giving masses of color to spots which would otherwise be bare and monotonous.

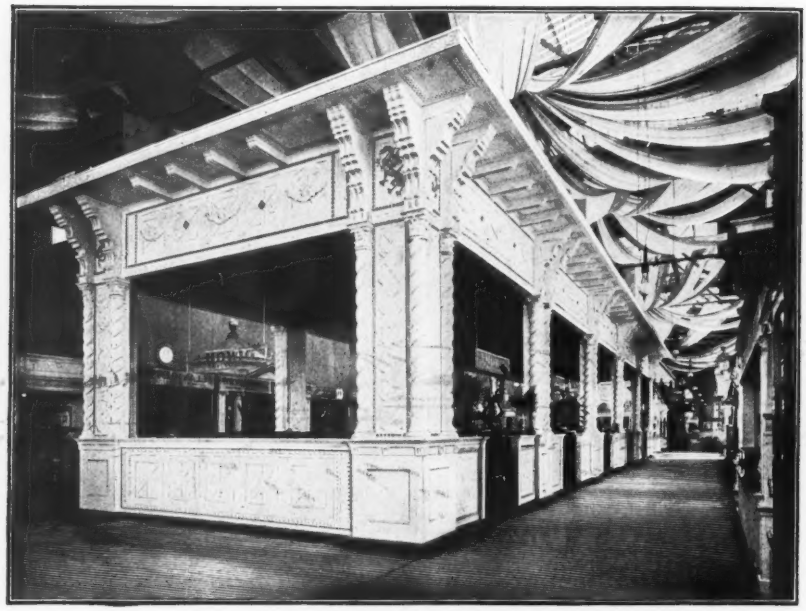
In the Electricity Building, light shades of green and violet bunting are used. Everything in this building in the way of decoration is kept very light to avoid interfering with the electrical display. Violet and green form the most agreeable combinations, which show electric light to advantage. Here, too, tapestry paintings are used, notably in the central portion of the building, where the draperies are carried up to the center, filling the entire dome.

In the Agriculture Building the colors used are intended to suggest autumn and spring. The use of strong yellow and light yellowish-green predominates, and because of the number of South American countries represented in this building their flags are distributed very freely, adding much red and yellow with large spots of green. Here, too, the cartouches are used, with coats of arms of the countries taking part in the exhibition, as well as the tapestry paintings illustrating the exhibits. The construction of this building lends itself very happily to the decorations. The walls are also covered with green burlap.

The use of gold, blue and white in the Manufactures and Liberal Arts Building keeps the effect there rather quiet. There being such a multitude of booths of great variety, it was deemed wise to restrain the interior decorations and strive for a quiet effect. Here seines have been used in decorating, and form part of an exhibit at the same time.

In the Bazaar Building, where there also occurs great variety in the character of the exhibits, green, white and gold were used in the draperies which are festooned among the rafters of the roof.

The entire walls as well as the ceiling of the Graphic Arts Building have been



A ROW OF ATTRACTIVE BOOTHS.

covered with olive-green burlap, making a very pleasing background for the variety of exhibits of the graphic arts.

Maroon burlap has been chosen for the Mines Building, because it was thought this would be the best surrounding for the exhibits.

In the Horticulture Building a great deal of care has been taken to keep the color tones as light as possible by the use of white and green, and artificial leaves. Festoons and clusters are gathered about the trusses and rafters, and along the beams are draperies radiating from the domes to the trusses below. Flowers and plants have been clustered about the posts, and the great figure of the Goddess of Light has been placed in the center of the building, surrounded by palms which give the keynote of green and white to the building.

In the Acetylene Building old-rose and white as a combination, with a little green, have been used, this being deemed by the exhibitors the best combination of color to display their light to advantage.

In the distribution of flags about the grounds and buildings, great care has been taken to have the stronger colors massed at the south end and the cooler light shades in the neighborhood of the Tower, to conform with the general scheme of color and not mar the effect. Of course, the flags of the various countries taking part in the exhibition have been distributed throughout the grounds and the buildings.

Let me once more emphasize the fact that in this Exposition for the first time in my knowledge the allied arts are in evidence and the architect, painter and sculptor have worked together toward a common end, the beautifying of the great Exposition; and although the sculptor and painter were called upon quite early, much earlier than has ever been known before, I feel quite sure that they should be consulted at the very inception of any exposition, or building of importance, or enterprise of any kind which has art as an important factor. The chief end of such an exposition is harmony. All such work, it is evident, should begin and proceed in consultation.

AN ATHLETIC MEET IN THE STADIUM.

ATHLETICS AND THE STADIUM.

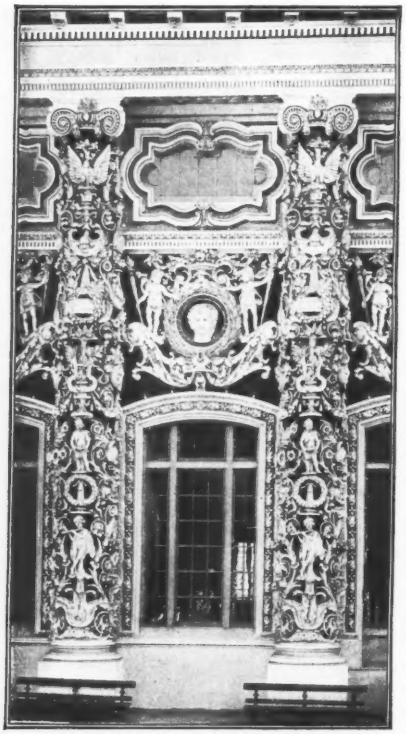
By JAMES E. SULLIVAN, President of the A. A. U

THAT we are rapidly becoming an athletic nation, and that physical education is fully recognized, is apparent to any one who visits the Pan-American Exposition at Buffalo this year. Many features will long be remembered by those fortunate enough to visit the Exposition, and from a spectacular standpoint in comparison with the Chicago and Paris expositions all admit that the Buffalo electrical display stands preëminent. But with its position as leader in electricity acknowledged, there is one other feature that will live in the memories of the many thousands years and years after the electrical display is forgotten, and that is the recognition of athletics and the building of the Stadium.

The American youth is being educated now at school, at college and in clubs to follow athletics, fresh air and recreation as a means of building up a sound body, knowing perfectly well that a sound physique will naturally give to an intelligent mind a better working foundation.

Athletics at the Pan-American Exposition have been thought over and worked out for a year or more, and the name of Mr. W. I. Buchanan, Director-General of the Exposition, should be added to the roll of honor in future athletic history, for I have been reliably informed that he is the man who conceived the idea of having an Athletic Congress during the year of 1901 in the city of Buffalo which would eclipse any athletic carnival heretofore attempted, with the object that athletics should become an important part of the expositions established in the future.

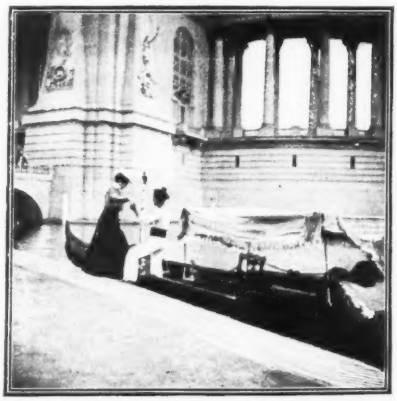
At the farewell banquet tendered Mr. A. G. Spalding and the successful American athletes in the American Pavilion after the international games in Paris last year,



THE PILLARS OF THE TEMPLE OF MUSIC.

Mr. Spalding struck the keynote when he said that he was proud to be the Director of Sports to bring to Europe the finest specimens of manhood that could be produced throughout the civilized world—for the Americans won nearly all the prizes. Furthermore he said there might be some discussion as to the awarding of the Grand Prix to the American engineer or artisan, because the objects displayed were inanimate, could not talk, and were not allowed to perform for themselves, but that with the athletes it was entirely different, it was a case of personal competition and personal superiority. Therefore it is only fair that we should give to the Pan-American people the full credit of being the first exposition authorities to recognize athletic sports in a national way in America. To the Committee on Sports a great deal of credit is due. This committee, composed of the leading athletic authorities from the different colleges, has been working hard for several months, the original chairman, Mr. Jesse C. Dann, being forced to retire from the chairmanship through overwork in conjunction with the planning of the monster sport and athletic carnival. His place has been taken by Mr. Seward A. Simons, a well-known Cornell graduate, who apparently is the right man in the right place. The make-up of this committee, with its advisory council, guaranteed success from an athletic standpoint. The Committee on Sports consists of Mr. Seward A. Simons, chairman; Mr. Jesse C. Dann, Dr. Charles Cary, Mr. J. McC. Mitchell, Mr. John B. Olmstead, Doctor Johnson, Mr. Charles M. Ransom, Mr. C. R. Wyckoff, Mr. Wm. Burnet Wright, Jr., and Mr. S. D. Clarke, secretary. The advisory committee is made up as follows: Hon. Theodore Roosevelt, Mr. Walter Camp, Mr. C. C. Cuyler, Mr. F. B. Ellis, Mr. C. S. Hyman, Mr. C. H. Sherrill, Mr. A. A. Stagg, Pres. Benjamin Ide Wheeler, Mr. Caspar Whitney and Mr. R. D. Wrenn.

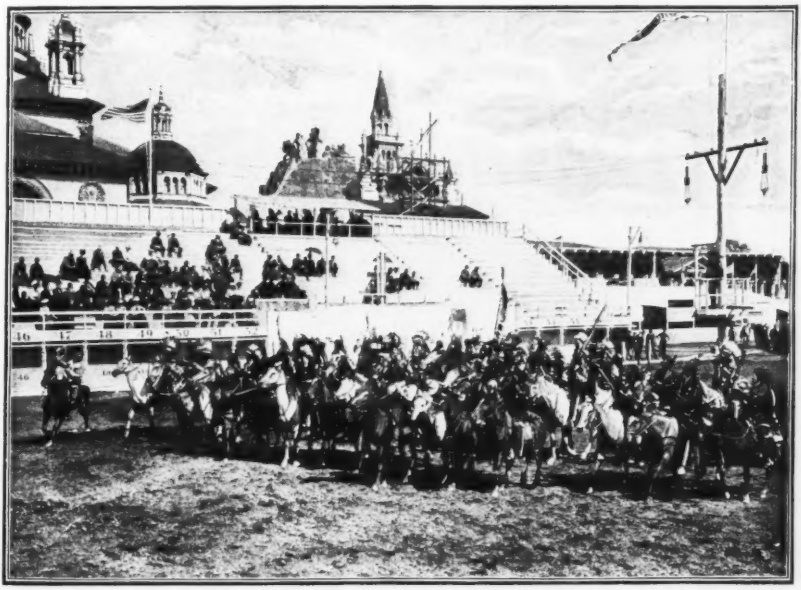
A few words now about the Stadium. It is without doubt the largest and most imposing athletic arena ever erected in this country, and it is to be regretted that it cannot be left in the city of Buffalo permanently as a monument to athletics. I fear, however, it will share the fate of all the other buildings. It is modeled a good deal after the ancient Stadium at Athens, but is somewhat smaller. It covers a plot six hundred and seventy-eight and one-half by four hundred and fifty and one-



BOARDING A GONDOLA.

half feet, and has a quarter-mile track about twenty-two feet in width.

To the knowing ones it seems marvelous that such a grand athletic amphitheater could possibly be erected in such a short space of time, for in the latter part of April the entire arena was one mudhole and to an inexperienced mechanic it looked as though the arena would never be finished. Talent was secured, and as a result the Stadium to-day is beautiful, and any one who visits Buffalo without seeing it will miss a rare treat. The infield is entirely level and sodded. The track was



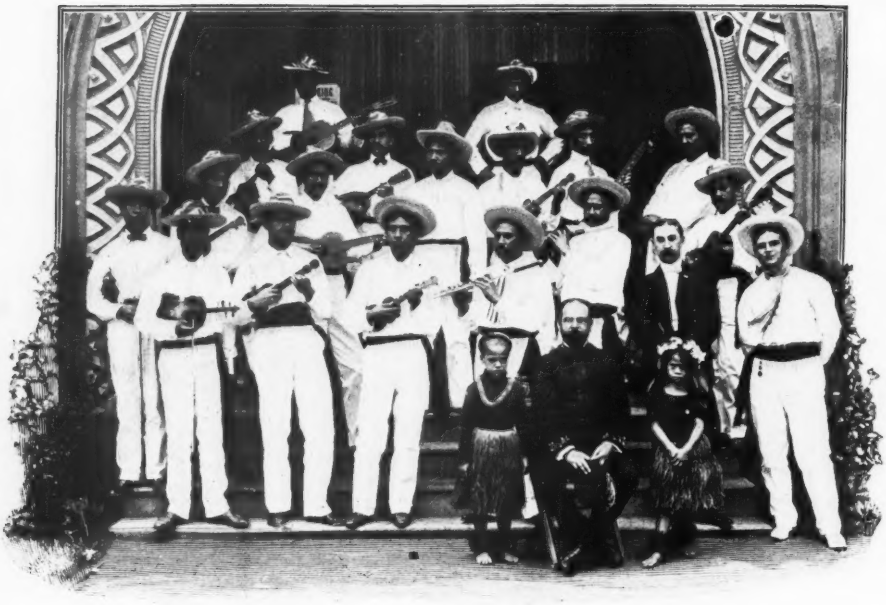
THE INDIAN CONGRESS.

built by an expert, and it is without doubt the fastest and best-built track in the world. The seating capacity of the Stadium is between ten and twelve thousand. The front of the Stadium is most impressive. The entrance is through a two-story building covering one hundred and seventy feet by fifty-two feet of ground space. Much time and labor have been spent on its adornment. Its color is animated, and from a sculptural standpoint it appears massive and artistic. The amount of money that has been spent on the Stadium is about one hundred and twenty-five thousand dollars, and it has certainly been well spent.

What has the Exposition done for athletics? It has given to all kinds of champions an opportunity to compete and win handsome trophies that will be cherished long after club emblems are forgotten. It has given to thousands an intelligent idea of athletics and of what the brawn and muscle of America represent. No doubt many who go to Buffalo who have no idea of ever taking part in or enjoying sport of any kind, will become enthusiasts. Almost every kind of sport is represented here, and the interest thus aroused will be of lasting benefit to the country. Thousands are seeing and learning things that heretofore were as strange to them as the hieroglyphics on Cleopatra's Needle.

The program scheduled from May to October is an elaborate one, the most elaborate ever arranged by a corporation or an individual in the civilized world so far as our records can go, and up to the present writing it has been successfully carried out.

The sports opened within the Stadium with a game of base-ball between the Carlisle Indians and the Cornell University team. This was followed soon after with



MR. SOUSA STOPPING TO CHAT WITH THE HAWAIIAN BAND.

an intercollegiate track meeting. At this meeting all the leading American athletes displayed their ability. The great Arthur Duffy won the one-hundred-yard dash in ten seconds on a new track. DeWitt, the young Hercules, displayed his ability as a hammer-thrower. Beck won the shot-putting event, and the Eastern champions for the first time competed with the Western intercollegiate champions. Cornell's fine team secured the greatest number of points.

It was, however, on June 13th, 14th and 15th that the principal athletic features of the year were decided most successfully, those days being the junior and senior dates of the Amateur Athletic Union championships and a handicap meeting. The handicap meeting preceded the championships and brought together a great many of the crack American athletes, the Knickerbocker Athletic Club securing the greatest number of points. On the second day the junior championships showed the Pastime Athletic Club of New York city as the premier junior organization. In the senior championships the honors went to the New York Athletic Club, with its magnificent team of crack athletes. At this meeting, Sears, of Cornell, who is certainly America's coming sprinter, won the one-hundred- and two-hundred-and-twenty-yard runs in grand

A GROUP OF PAPOOSES IN THE INDIAN CONGRESS.

style. He ran the one-hundred-yard dash in nine and four-fifths seconds, record time, but it is doubtful if that record will be allowed, as a slight wind aided him. The field events brought together the athletic giants of America—Flanagan, Edgren, Sheridan, Beck, Henneman, DeWitt, Gunn and Gill. In throwing the discus, the ancient Grecian game, a young man from Canada, Harry L. Gill, threw the missile one hundred and eighteen feet five inches; the effort of Richard J. Sheridan, the second man, measured one hundred and eleven feet nine and one-half inches; John Flanagan was third, with one hundred and nine feet four and one-half inches, and Henneman was fourth, one hundred and six feet ten inches. These instances are cited merely as an illustration to show the supremacy of the American athlete and his ability to master any sport athletically, no matter how intricate. Throwing the discus was unknown in this country until the return of Mr. Robert Garrett, of Princeton, in 1896, from Athens, where he competed with the famous Grecian discus-throwers.

AN ANCIENT MISSION.

THE CUBAN BUILDING.

LOOKING DOWN THE MIDWAY.

To the surprise of all, he not only won the championship there but beat the Grecian record which had stood for centuries. On his return to America he brought with him the discus. It was immediately copied and manufactured here, with the result that to-day America has the greatest discus-throwers in the world. It was at the junior championship meeting that Jerry Pierce, the famous Indian runner, made his appearance. He won the junior distance run in handsome style, but he was defeated by Frank Kanealy, of New England, an older runner, in the senior event.

"DON'T FAIL TO SEE——"

In basket-ball, which is apparently America's coming indoor game, the championship contests were held in the Stadium on the 17th and 18th of June. No fewer than seven teams from all parts of the country assembled, and the display of basket-ball given was very creditable. Teams from New Jersey, New England and New York strove for the honors, but it remained for a Buffalo team, practically unknown theretofore, to win the coveted trophy.

The early part of July saw as interesting a series of lacrosse matches as was ever played in this or any other country. The Capitals, of Ottawa, won the Canadian series and the Crescents, of New York, won the American series. On the afternoon of the Fourth of July, with ten thousand interested spectators gazing on them, the champions of each country strove for the Pan-American honors. It was a good game, but the Canadians were certainly more adept at lacrosse than the New York city boys and won easily.

On the same day the all-around championships of the United States were decided—the blue-ribbon event of the athletic arena. It comprises ten events and is scored by percentage, each athlete receiving credit for his performance in each of the ten contests, the athlete securing the highest percentage to be the winner. The entries for the all-around championships are always small; in fact, there are very few men in America who can go through the ten events with any degree of success, because a man is compelled to run, jump, walk, throw the weights and pole-vault, and a specialist has no business in the event. The contest this year was close between Adam Gunn, of Buffalo; Dan Reuss, of the Knickerbocker Athletic Club; McK. Hall, of Buffalo, and J. T. Mahoney, of the Knickerbocker Athletic Club. Gunn, the Buffalo lad, finally won.

The Stadium without a Marathon race would be like a Romeo without a Juliet. For this Marathon race—twenty-five miles in length, one mile to be run on the Stadium track, twenty-three miles out in the country and one mile on the Stadium track at the finish—more than a half-dozen entries from the best distance-runners of America and Canada were received. It was a hot day, a day totally unfit for such a long race;

A MIDWAY CLOWN.

nevertheless all the starters finished and won prizes. After being out some three hours and sixteen minutes, Samuel A. Mellor, of the Hollywood Inn Club, Yonkers, New York, made his appearance at the Southern Gate with an American flag in one hand and a Pan-American flag in the other, and the thousands in the Stadium arose en masse and cheered him as only the victor should be cheered. His performance was certainly good.

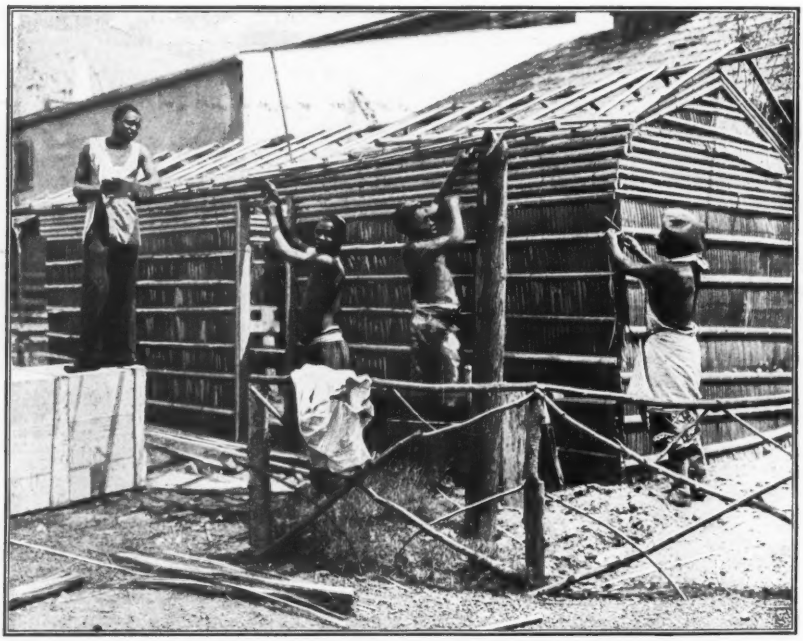
The school-boys' events received exceptional attention, because the school-boy element in athletics to-day is an important one. Our college, club and championship entries come from the schools, and it is only fair that this preliminary training-ground of the athlete should be given a day. The honors went to the Hill School, of Pottstown, Pennsylvania, whose athletic interests are being looked after by Mr. M. J. Sweeney, holder of the world's amateur record of six feet five and five-eighths inches for the high jump.

Owing to the fact that it was found utterly impossible to build within the Stadium a tank for the swimming races, these events were held in the Park Lake off the Life-Saving Station, and they were, no doubt, the most successful swimming-championship contests held in the past twenty years. Schaeffer, formerly of the University of Pennsylvania, won three events, the one-hundred-yard, two-hundred-and-twenty-yard and four-hundred-and-forty-yard, making new world's records. Otto Wahle, the Austrian champion, who lately arrived in America, gave a splendid exhibition of swimming in the one-mile race, making a new American record for the distance. In this race it is only fair to say a good word for the American who pushed him so hard, J. W. Spencer, of Columbia University, who stuck closely to the leader and also broke the American record. The final day of the water sports was given over to water-polo, and the grand team of the Knickerbocker Athletic Club, for years the American champions, gave a fine exhibition of the game and won without much opposition.

THE PORTICO OF THE OHIO BUILDING.

The program which has been so brilliantly started and continued through event after event, will no doubt be carried on

successfully into October according to the schedule. Two weeks were devoted to bicycle races in August, when the American and international champions met, and then will follow a firemen's tournament, Irish sports, gymnastic championships, Association foot-ball games, and the Pan-American world's championships in September, as well as a cross-country championship and a week of automobile races and exposition. The month of October will be given up exclusively to foot-ball among the leading colleges of America.



IN DARKEST AFRICA.

From those who are not athletically inclined I have heard criticism that so much money should be spent on athletics. That is natural, but to those who have been giving up their entire time and life for the advancement of athletics in the hope of building for the future of our race, the amount spent has seemed too little. Why should not the advancement we have made in athletics receive the same recognition as the advancement we have made in science, art and literature? By glancing over the "Clipper Almanac" for 1875, which was then the recognized authority on records, the progress made by the American athlete is seen in black and white. In the record-book that year among the amateur running and walking records from one hundred yards up, we cannot find the name of one American athlete as a record-holder, all the amateur records being held by Englishmen, Irishmen or Scotchmen. What a change to-day! Pick up an athletic almanac for this year and look over the records in running, jumping, walking and weight-throwing. What do we find as to the nativity of the holders? That nine-tenths of the records are held by Americans. Is not that enough reason for any exposition to incorporate a display of athletics in its list?

It is to be hoped that at St. Louis in 1903 a Stadium will be built; that it will be a permanent one, one that will be left to the city of St. Louis; and that they will there endeavor to eclipse the good work that has already been done, mapped out and carried through by the Pan-American Exposition.

THE INCUBATOR BABY AND NIAGARA FALLS.*

By Arthur Brisbane.

MEN go to the Exposition at Buffalo to see and to think.

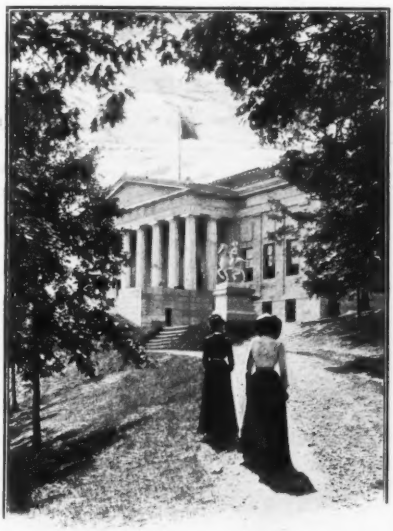
Two features of the Exposition well worth seeing and thinking about are chosen for discussion here:

Two vast extremes.

The weakest and the most powerful manifestation of nature's power.

The falls of Niagara, with the great system of lakes and rivers behind them.

The diminutive baby in its hot-air chamber, sightless, deaf, feeble—but with the great human race, the vast sea of organized thought, back of it.



THE APPROACH TO THE NEW YORK STATE BUILDING.

All the world reveres the power and beauty of the falls. Men stand in the spray on the high banks, as the rainbows form and the green water sweeps over with millions of horse-power. Eighteen million cubic feet of water every minute, dashing down to carve out the solid rock.

There is power marvelously manifested.

But what is that power beside the force that may originate in the tiny brain of an incubator baby?

The brain is smaller now than half of an apple.

But that brain may start a work that will persist, and affect men's destiny, when the falls, working their own ruin, shall have dwindled down to an even, placid stream without so much as a ruffling of the water to tell where once the great power rushed by.

Look at the falls and look at the baby.

A mighty river flows swiftly and quietly until suddenly it drops into space over a ledge of solid rock one hundred and sixty-four feet high.

There is dull thunder in the air, a roaring that has not ceased for ages upon ages.

The mind cannot conceive the force of that torrent. Like so many chips it would wash away every vestige of the great Exposition and every building in the city of Buffalo.

But, if you will see it, there is more to interest in the little form behind the incubator glass than in all the roaring and power of "the Thunder of Waters."

The difference between the force of the Niagara River and that of the new-born baby is this:

One, the river, represents material force, the mere force of gravity. The child's brain represents spiritual force, the power of organization and of speculation. The

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*My Dear Mr. Walker:

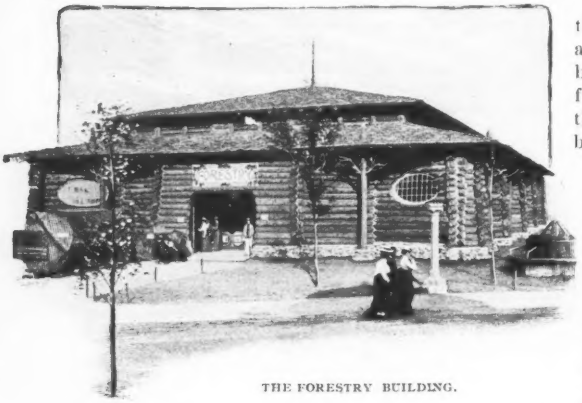
To describe adequately the Exposition at Buffalo would mean to review the history of the world in general and the development of this continent in particular.

A preliminary feature of such a task would be a description of this land's transition from a home of many bison and a few savages, to a nation of many savages and a little preliminary civilization.

According to Professor Blackie, we should "think" through a book. This well may be applied to a national exposition. He who will THINK his way through the Exposition at Buffalo, or even part way through, must find something interesting to tell, though he describe but a fragment of the splendid edifice.

I have selected two extreme features for discussion. I hope the bringing together of natural phenomena as widely divergent as the falls of Niagara and an incubator baby will interest some of your readers—and that I shall not entirely waste the space that you are good enough to offer me.

Yours very truly. Arthur Brisbane.



THE FORESTRY BUILDING.

power sent here in fragile human forms to rule the falls, and other manifestations of crude power, regulate nature and do the work of embellishing and cultivating the globe.

Have you ever seen a baby in an incubator?

Look at one now.

Through a thick plate of glass you see a tiny form arrayed in spotless linen. Blue ribbons indicate elbows and knees.

The tiny human being lies on a soft cushion, under its head a pillow as big as a man's hand. It is pathetically short and mysteriously still.

The head is small, the face pink and tranquil, with the solemn tranquillity of peaceful old age.

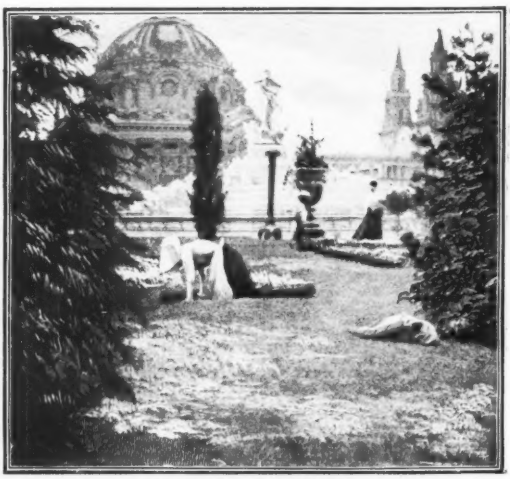
The hands are so small that a beetle might almost wear them for claws. They are gently closed. The baby is supremely happy and comfortable, with the happiness that knows no want, feels and craves nothing.

That incubator baby begins earthly life in the blissful state of Nirvana, for which the Buddhist struggles through existence.

The typical American mind, ever suspicious, watches the little creature with growing doubt. Is it a real baby, or a wax one put there to deceive the public? The nose, in size and shape like a small huckleberry, gives faint promise of future character. It draws in the heated air so softly that breathing is invisible.

Perhaps long watching shows the waxen fingers open and close, very slowly. That means that a revolution is approaching in that small human world. The baby wants to be fed, and soon you will realize that he is alive. His face is drawn into odd shapes. A feeble wrinkle, inherited from some ancient relative, appears above the eyes. The eyes are tightened into knots, the hands are jerked up over the stomach—sole seat of serious sensation—and a mewing sort of cry tells the watchful nurse that feeding-time has come.

He is moved from his nest of heated air, carefully wrapped in woolen coverings. He is weighed, fed as nature intended he should be fed, weighed again and put back to resume his interrupted, sleepy contemplation of the infinite. If he does not weigh enough, he is persuaded in various ways to absorb more nourishment. His life is regulated, and, unlike older mortals, he is contented that it should be regulated.



WEEDING THE GARDENS.

RICKSHAW-MEN RESTING IN THE GARDENS.

Hot air, cleanliness, a soft bed and good food satisfy him.

Of all minds, a vast majority are more deeply impressed, of course, by the falls of Niagara than by any baby, however interestingly presented.

We are used to babies, and a majority of us see but little in them at best.

In Niagara Falls the human mind sees almost as many different interesting possibilities as there are different sorts of human beings.

The scientist looks at the great force going to waste.

He says, "I'll harness it." And he does. His harness attached to the cataract now lights the distant city and drives machinery many miles away.

The adventurous creature with dull imagination sees only danger and a chance for possible personal achievement by taking the risk.

He says, "I'll go over the falls myself." And he does go over in a barrel, to meet his death or to sit proudly in a dime museum the rest of his days.

The astronomer, looking at the earth as a tiny speck in space, sees in human admiration of the falls only interesting proof of our infinite human littleness.

He wonders that any man should study Niagara Falls when he might study comets traveling hundreds of miles per second, with streaming tails of fire millions of miles long.

The bride and groom, full to the brim with the little emotion which constitutes their world, see in Niagara Falls only a suitable background for a photograph.

The groom slaps his chest and says, "Our love is as strong as the cataract."

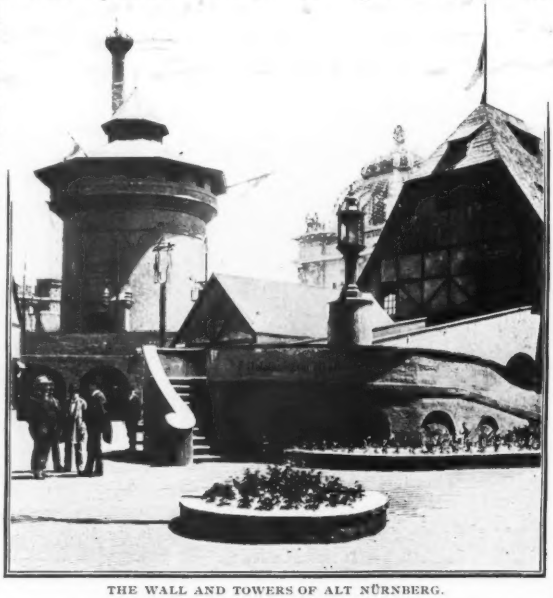
He forgets that, like the cataract, his love will recede, presumably.

The student of social problems finds suggestion and even ground for indignation in the study of the falls. The earnest single-taxer knows that the government has been compelled to pay vast sums in order to establish national parks near the cataract.

He knows that the falls are receding every year. It occurs to him that a speculative millionaire might buy up both banks of the Niagara River two miles above the falls and leave to his heirs absolute control of the cataract in the future. It maddens this single-taxer to think that this small investment now would enable the heirs of the plutocrat later on to own every foot of Niagara Falls real estate and compel the government to pay ruinous prices once more for park space.

There is theoretical logic in the single-taxer's views and in his anger. The cataract does recede. It recedes one foot every year on an average. If a man bought both sides of the river two miles above the falls, he would control all the cataract real estate in exactly ten thousand five hundred and sixty years from now. It would take that length of time for the cataract to move back two miles, so that the plutocrat's heirs would need to be very patient and pay taxes for a long time. Incidentally, by the time it shall have receded two miles the cataract will, according to scientists, be reduced in height to eighty feet and will hardly be worth seeing.

It is probable that in that distant day the troubles of the single-taxer will have been adjusted even , to his satisfaction, as a natural process of civilization.



THE WALL AND TOWERS OF ALT NÜRNBERG.

It is certain that at that time men will read with amusement of the primitive days when their fellows harnessed up a petty waterfall in order to move their engines.

In that far-off time the problem of conveying the strength of a waterfall a few miles away will appear as childish as the invention of the wheelbarrow seems to us now. Tides will long since have been harnessed. The brains then living on this big driving-wheel called the Earth will have learned to utilize the forces in the great machine on which they revolve daily.

Intellects are now struggling with the problem of abstracting electric force from coal direct. They will then be thinking of the problem of utilizing direct the sun's energy, or the power of gravity in our satellite donkey-engine, the moon.

But this has led us from our small, tiny-faced friends in the rows of incubators.

All kinds of little human dynamos lie in those hot-air boxes.

One with a few spears of red hair and a very determined expression at feeding-time is of pure Irish stock. If his emotions could be translated into coherent speech, he would undoubtedly express a desire to challenge any baby of his weight in Incubator Row. The nurses declare that he tries to fight them, although he weighs less than five pounds.

Another, of whom, perhaps, more later, is of German blood.

In spite of his youth, he is distinctly philosophical. It is easy to imagine that he devotes hours of speculation to a near-by shed in the Exposition where scientists are experimenting with different breeds of cows, testing their good qualities with various kinds of food, and especially their availability for nourishing motherless infants.

Side by side are three little creatures whose relationship is recognized at a glance. These are the Cohen triplets, taken by their careful father and mother to the home where the best chance for development will be given them.

Possibly you would envy the man who would own the falls of Niagara.

But you would envy much more wisely him who shall possess for his own the possibilities of development wrapped up in those little Cohen triplets.

You would possess the possibility of wealth beyond the dreams of avarice, as Doctor Johnson prophetically said when auctioning off the Bass' ale brewery. And you would possess, also, possibilities of power, intellectual and artistic, beyond the dreams of human ambition.

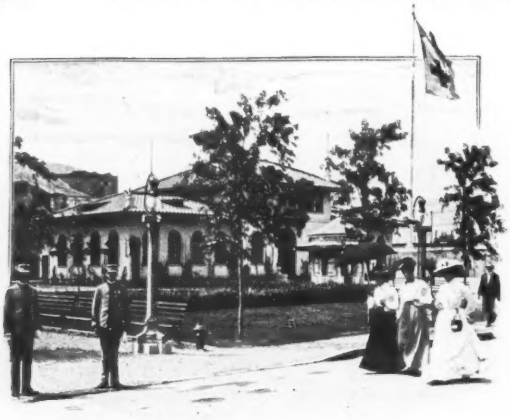
One triplet with the right start, education and incentive might give you the wealth of a Rothschild and enable you to buy, without feeling the outlay, all the power of the falls and the land for miles around.

Another might give you the genius of a Heine or the admirable moral purpose of a Spinoza, more desirable than all the money that all the Rothschilds ever dreamed of.

The third might contribute to your powers and to the world a Herschel in astronomy, a Mendelssohn in music, or a genius like that of Bernhardt in the art of interpreting genius.

Those three little creatures lie in their nests of warm air, quiet and dull, waiting for the feeding-hour. They are frail, in-

THE BAZAAR BUILDING.



THE HOSPITAL.

significant little atoms compared with the great torrent that roars and rocks the ground a few miles away from them.

But any one of those three small heads might develop a force far superior to that of many Niagaras.

When you go to the Exposition at Buffalo, you are sure to visit the falls without advising.

Be advised here to devote to the babies in their incubator at least as much thought, if not as much time, as to the giant waterfall.

In the evening, when you come out of the incubator building, you will find the Exposition lighted with wonderful effect by the invisible power generated at the falls and brought through wires to the little glass bulbs.

Towers of light, avenues of light, arches and fountains of light, dazzle you with their glitter and glare.

Nothing, you think, could be more impressive —until you look above and see, afar off in the dark, one single star that makes all the lighting of that little corner of the earth seem like the flickering of a few fireflies fluttering about in the face of eternity.

The power of Niagara lights those lamps and floods the Exposition with brilliancy.

But in the brain of an infant is born the power that lights civilization, that lights the path of men on their journey toward a decent social order.

We can measure and limit the power that thunders at Niagara. We know that it is indestructible; that we may at will utilize it as heat, motion, light, electricity.

But who can measure or limit, or understand, the power that is in the human brain?

That power also is indestructible. It bestows immortality on all who think. It involves the marvelous combination of comparison, observation, induction, deduction.

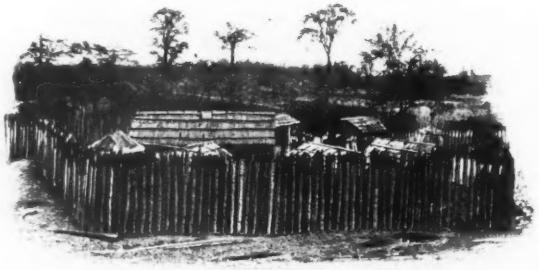
It is the force that rules the world, studies and gradually understands the universe.

Of that wonderful power of thought the seed is planted in every infant brain.

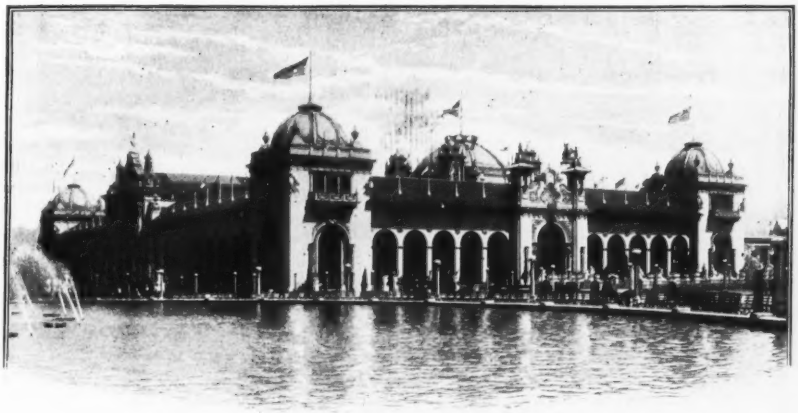
And for that reason the incubator baby, silent, unimpressive, insignificant apparently, deserves to rank in importance with the falls of Niagara when nature's wonders are studied intelligently.

P.S.—A Lesson for Mothers.

The baby in the incubator is born into a world of trials and troubles before his appointed time. For that reason science provides for him in the incubator a home as like as possible in temperature and other conditions to that which he has hurriedly abandoned.



THE SIX NATIONS VILLAGE.



THE LIBERAL ARTS BUILDING.

One incubator baby of German parentage was studied by this writer. There is a lesson for mothers in that German baby, as there is in every incubator baby, and it shall be told.

The German baby hurried into the world almost three months ahead of time. He weighed three pounds, and doubled his weight in six weeks.

His heart was about as big as the end of your thumb, and his liver—as in all new-born babies—was monstrously large, nearly as big as that of a child of ten. If you want to admire nature's wisdom, study the new-born baby's liver, with its changed position in the body and its wonderful adaptation to a milk diet.

That little German infant, like all babies born too soon, presented an aspect of extreme old age. It was one mass of wrinkles all over its body.

Nature does not waste effort. The baby unborn has no need of adipose tissue, and the tissues of the body, intended to act as cushions, protecting us from the outside material world, are provided only just before birth.

He arrived quite bald, toothless of course, with wrinkled skin and an aspect of unbelievable solemnity. No man one hundred and twenty-five years of age ever appeared one-half as ancient.

HERE IS THE LESSON FOR MOTHERS.

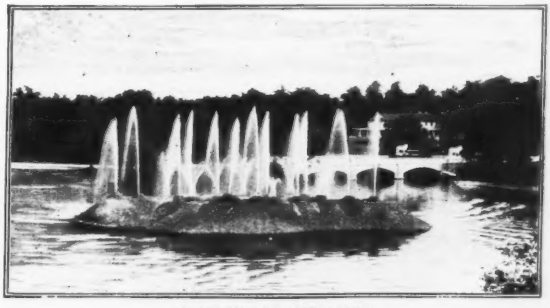
The baby did so well at the end of six weeks that its mother insisted on removing it from the artificial nest.

It was well cared for by a mother of at least average intelligence. But it failed rapidly, and would have died soon had it not been put back in its shelter.

It suffered, not merely through irregularities of temperature, but through brain fatigue.

Mothers would do well to remember that the chief thing in caring for a baby is to keep its brain quiet.

An agitated infantile brain exhausts the blood-supply, takes heat from the stomach, where it should be, to the brain, where it does harm, and kills off millions of children.



AN ISLAND OF FOUNTAINS.

This particular baby was not agitated mentally by the usual processes of forcing intelligence. He paid attention to nobody.

But removed from his incubator his brain was forced to work, in order to regulate temperature.

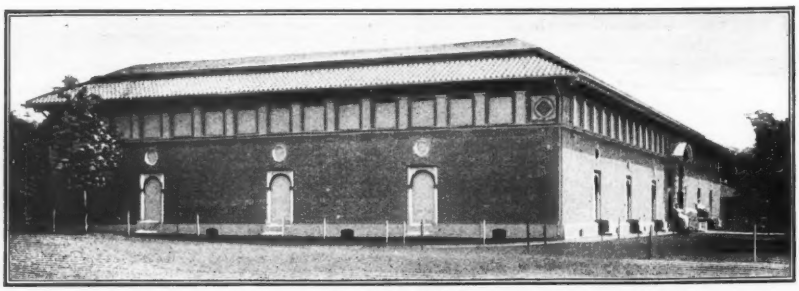
Every human brain contains among its millions of distinct parts a mechanism which devotes its energies to dealing with conditions of heat and cold.

A BIT OF THE ELECTRIC TOWER.

This thermotic apparatus causes closing of the pores when sudden cold strikes the body, and regulates in other ways our physical ability to undergo changes of temperature. So, at least, said the wise doctor that cared for the German baby. This feeble effort of one tiny brain function was sufficient to diminish the baby's vitality and menace his life.

Mothers blessed with healthy children normally born should learn from the German baby's narrow escape to let their children's minds rest as long as possible, while the body gets its start. Nature sets the example by making the baby deaf for a long time after birth. Mothers and nurses often do not know even this.

To-day the German baby is doing well. It is as heavy as its competitors on the block and will live to do its share of the world's hard work. It will do infinite good, should the story of its advent here below impress upon mothers the fact that building up the baby's body involves keeping its brain quiet.



THE ARTS BUILDING.

THE TRIUMPHAL CAUSEWAY.

THE ORGANIZATION OF AN EXPOSITION.

By W. I. BUCHANAN, Director-General of the Exposition.

THE means and methods employed in the United States at the beginning of an exposition project, in connection with the creation of public sentiment and the enlistment of popular support for such an undertaking, make it impossible thereafter to build up within it a good business-like organization to carry out the work required to make the project a reality.

If a certain number of millions of dollars were placed at the disposal of a small selected body of men and they were told that they could proceed, untrammeled in every way, to build and equip an exposition, the work would be done more effectively, with greater rapidity and with much more economy than is possible under our usual methods in such matters, but the undertaking would lack those most essential elements of success, namely: the widest general interest possible in the financial success of the work, and public contact at all points. These are absolutely necessary to the broadest success of such an undertaking, but they are at the same time the reason why it is impossible, having them present, to bring together a perfect business-like organization to carry out the contemplated work. This being true, it is to be expected that one will find in a great undertaking such as the Pan-American Exposition many evidences of faulty organization.

Nevertheless, I think fewer such evidences are apparent in this Exposition than in any of those that have preceded it. This has been made possible owing chiefly to the personal rather than public interest that has been taken in the Exposition by every one in Buffalo (which comes about because of the fact that the Exposition was financed in Buffalo alone), and the rare general confidence of Buffalonians in the Board of Directors. These have worked

together as a unit for the past two years, and can now look with just pride and satisfaction upon the completed and successful Exposition they have created.

Some dominant sentiment or idea around which a working plan can be outlined and built upon and followed, must underlie every exposition. In the Pan-American Exposition this central point has been the belief, widely if intermittently existing, and especially in the United States, that the peoples of the Western hemisphere should know each other better than heretofore and be better informed than they have been with regard to the capabilities and needs not only of their own country but of America as a whole, and of the opportunities existing therein for commercial activity and energy. This limited the scope and work to the Western half of the world, and hence no efforts of any kind were expended in Europe. With but eighteen months within which to accomplish the whole work, both of building and securing the coöperation of countries and states and of exhibitors and the general public, the Executive Committee was obliged to formulate all of the plans required, and especially those applying to the participation of Canada and Central and South America, with the greatest rapidity, and success in those directions had to be attained or the Exposition would not have been Pan-American and would then have failed to reach the chief ideal upon which it was based. Toward accomplishing this purpose the services of the State Department were enlisted; a section of the Press Department of the Exposition was set apart and put in commission for this specific work; and representatives of the Exposition were sent to the several countries to bring the Exposition personally before their governments. With all these elements, a constant telegraphic correspondence between the Exposition and the different American foreign capitals was necessary, in order that delays might be avoided, and thus a much larger expense was incurred than would have been necessary could the Exposition have had another year within which to mature. The limited time at the command of the Executive Committee also operated as a great drawback in securing foreign government appropriations from each of the eighteen countries represented, and in properly preparing exhibits in each country; and in some cases the completion of all of their installations was, through no fault of theirs, delayed until July.

The short time in which expositions are, unfortunately, usually required to be concluded is a great hindrance not only to the foreign portion of the work involved but also to planning adequately and economically the different buildings and features, so as to give them the highest maximum latitude of adaptability to each interest that is to be cared for by the classification of the exposition; because, no matter how expert an architectural theorist may be in such things, there are actual inelastic physical conditions and necessities in every exposition building and ground-plan which constantly return to embarrass those who have the direction of the whole undertaking. All of this could be avoided if sufficient time were taken in the beginning to adapt the architectural plans of the buildings and grounds to what it is proposed shall be the definite scope and limit of the exposition, rather than, as is customary now, to adapt the scheme as a whole to the architect's idealized plans. For example, a Machinery Building is so planned in the architectural scheme of an exposition—and properly so—that it will correctly conform to its surroundings and will harmonize with its neighbors. If in so planning the building it turns out, happily, to be adapted excellently in every way for the purposes of a machinery exhibit, well and good; if, on the other hand, the reverse shall occur, the management must be contented to adapt the exhibit to the building at no matter what inconvenience and expense. It can therefore easily happen, and does occur to a greater or less extent in every exposition, that the general architectural plan of an exposition may be beautiful and the outline and exquisite detail and finish of its buildings perfect and beyond criticism in all these regards, as occurs in both instances with the Pan-American Exposition, while the scheme as a whole may still be deficient in many important points. Not only could all these things be secured and a great economy of money be brought about, but, in addition, the adaptability and utility of the grounds and build-

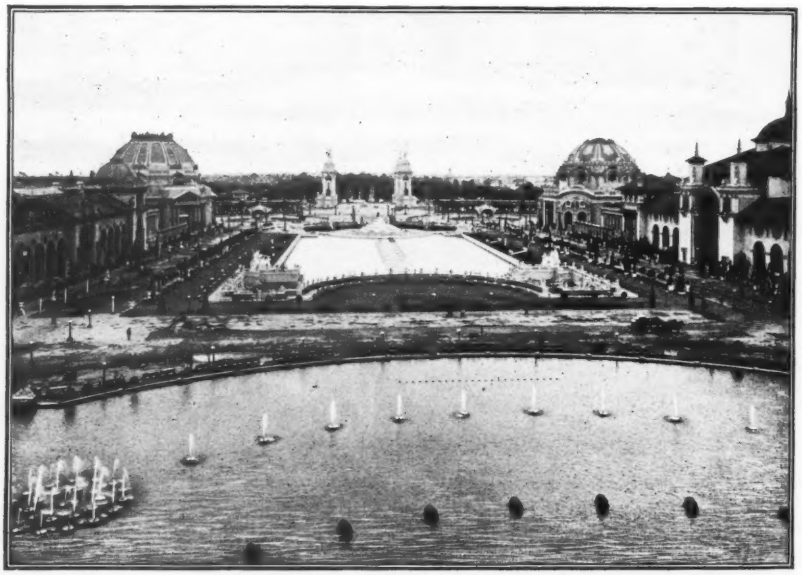
ings of an exposition would be increased a hundredfold if in the beginning sufficient time and care were taken to adapt the architectural plans to the definite, detailed purposes of the exposition rather than to proceed, as we now do in almost every instance, to adapt the exposition to the architectural plans previously prepared.

This usually occurs because of the fact that the formative machinery required to outline and gather together the material for the different exhibit divisions and other features of an exposition, is evolved and put to work so slowly by the cumbersome committee organization which is always present at the beginning of such a work that, in order that the buildings and grounds may be completed on time, the construction of the exposition cannot wait this process of organization and reorganization. Because of the necessity to rush everything forward, demands made later for space make it necessary that changes shall be made in building plans, usually ending in the insertion in a building of those most pernicious and irrational of all exposition creations, galleries—which, while furnishing the additional area desired, never give satisfaction either to the exhibitor or to the visitor, and should be cut out from every exposition plan.

While all parts of the machinery of an exposition organization must be put in operation at one and the same time, and kept going at high speed, that portion having to do with the participation of foreign countries must do, approximately, all of its work at the beginning, if it is to succeed at all. This requires the early and careful framing of circular letters setting forth, in the languages of the countries it is sought to interest, the scope, purposes and aims of the exposition. These must go to the different governments through the channel of the State Department and our diplomatic representatives abroad, who must in turn be kept fully informed concerning the proposed exposition. Simultaneously with this, folders and other forms of printed matter must be prepared and printed in the languages of the countries to be interested, giving in detail the

THE PLAZA.

exposition's plans and the reasons and arguments which shall best show that it will be advantageous to such countries to participate in the exposition. These must be issued in hundreds of thousands, and a large force of clerks must be organized and put to work preparing foreign mailing-lists to which all this matter can be sent; then men must be carefully selected, equipped and sent abroad to give life and impetus to the work of interesting the foreign press; and, that this may be efficiently done, the Foreign Department of the Publicity Bureau must be quickly and skilfully enlarged, pictures of the exposition being made and



LOOKING SOUTH FROM THE ELECTRIC TOWER.

every form of descriptive and editorial article being prepared that can be made to touch upon the subject. These, to be readily used, must be put into slips in the different languages employed, so that they can be found by the foreign editor at his elbow when he is thinking of what he can use at the moment. In the advertising department of the exposition designers must be sought out and put to work to prepare the forms and styles most likely to make the printed matter to be sent out attractive. Special emblematic designs for covers and for advertising heads must be secured by competition and copyrighted and put out by the millions, in every form possible, throughout the world. The working force of the advertising and press bureaus of an exposition grows until hundreds of clerks, male and female, are employed and dozens of writers and designers and bookkeepers are kept at work constantly. Bookkeeping becomes a necessity, since a record of all shipments of cuts and of every bundle of advertising matter sent out becomes essential, in order that a check may be kept on the operation of the two bureaus and the exposition be able at any given moment to know how many newspapers have been reached throughout the world and to whom and in what quantities advertising matter has been distributed.

While all the above-described work is getting under way, rules for the government of the great exhibit sections of the exposition and information of general interest to prospective exhibitors must be prepared and printed in many languages. The organization of the exhibit divisions of an exposition requires the greatest care in the selection of men, and when these are found, the force of clerks and stenographers under each must be completed and methodical, rapid work must be undertaken by each division through correspondence

with manufacturers throughout all the countries to be interested. For this purpose, blank forms by the thousands are required. Selected mailing-lists are built up from special sources, covering only the highest class of manufacturers and producers under each classification head.

All this work must be done promptly and effectively, involving the employment of hundreds of stenographers, clerks and office-boys. The official classification of exhibits must be prepared and printed for general distribution, in order that exhibitors may know the section of the exposition in which they will be allotted space. This matter of classification is really one of great importance, since it is the basis upon which the juries of award will later distribute the medals and diplomas of the exposition. Up to and including the classification of exhibits at the Pan-American Exposition, this work has never been done in a manner satisfactory to all, and the work will probably never be so done, since the only really comprehensive classification of exhibits would end in the three following heads: (1) Animate things. (2) Inanimate things. (3) Other things. Inasmuch as such a definition would probably not suit any one, it appears fair to assume that we shall continue making classifications as heretofore.

Transportation questions affect an exposition with vital interest, because the extent to which the freight and passenger rates put in effect for the project approach a low and generous mark, indicates the degree of general interest that will probably be taken in it by the public. It becomes, hence, most important to perfect the organization of the passenger and freight bureau of an exposition early, by the selection of the best-equipped men it is possible to obtain for that work. After that has been done, it is equally important to see that the bureaus work with the railway passenger and freight associations in the closest harmony if success is to be expected, since no one not familiar with the actual operation of the great machinery of an exposition organization can appreciate how close must be the relations between the project and the transportation companies of a country, if the anticipations of the promoters are to be realized.

Simultaneously with the other work of organization mentioned, there is to be taken into account the formation of the police, or guard, force and of the medical and fire service of the exposition. These must be thought out fully and an early start made in their equipment and discipline, so that each may be effectively increased as the necessities of the occasion require. To bring these three important features of the organization into satisfactory existence requires an immense quantity of detail. Rules for the formation and government of each have to be framed; the type of each organization is to be decided upon; uniforms are to be designed and adopted, and permanent quarters planned and prepared. And through all this infinite variety of organization there must be kept prominently in view the need of the most rigid economy, because if this is not done in all branches of the exposition machinery, the work can easily cost millions more to carry it out than was ever contemplated by its promoters.

The amusement side of the exposition must also be put in motion early, and this involves the application of a peculiar order of business ability to the problems that will arise in the negotiations to be entered into with concessionaires of all kinds. This branch of the Pan-American Exposition was most efficiently handled by an excellent committee, in connection with an experienced executive officer, who reported to the Director-General. In this work the legal bureau of an exposition becomes a prominent factor, and just here it is opportune to say that the work of this latter bureau is not only most important but of endless variety and requires a very considerable force of lawyers and law-clerks. Blank forms of contracts of all kinds required in the work of the exposition, agreements or quasi-agreements, and all important letters which might at some time be construed as contractual should be passed upon and approved by that bureau; and all questions of policy should be discussed with the bureau, since in that way many conflicts of authority or with regard to rights of concessionaires and exhibitors will be averted, and the working of the whole machinery of an exposition made easier and smoother than if these precautions are not taken.

While the forces of the exposition thus necessary are being formulated, focused and put in motion to create and gather together the widely different phases of interest and the unlocated things and elements required to make an exposition, a great and most elastic force of engineers, electricians, draftsmen, modelers, landscape-gardeners, sculptors and painters must have been brought together and set at work planning, elaborating and working out, under the direct personal control of the Director of Works of the exposition, not only the broad plan outlined by the architectural board of the exposition but the numberless details incident to the preparation of the grounds and the erection and decoration and lighting of the necessary buildings. These men will frequently be numbered by hundreds, and must supply the highest order of ability in each branch of the work to be done. Following them come the contractors of all kinds who are to carry out the plans thus prepared, and, because of the short time within which these latter can work, it always happens that a seemingly unnecessarily great force of carpenters, plasterers, staff-workers, roofers, iron-workers, painters, glaziers, masons, bricklayers, laborers and others are put at work; at times in the work of constructing the Pan-American Exposition these numbered as high as six thousand. Indeed, there were days when the different pay-rolls of the Pan-American Exposition showed that eight thousand persons were at work upon the Exposition, in all its branches. From such figures one can see not only why the daily purchases involved in carrying out such a work become a great problem, requiring the careful organization of a purchasing department and the devising of a system of requisitions and checks and approvals that will repress extravagance in purchases, but also why the necessity exists for the creation therein of a careful audit system and of a well-thought-out method of accounting, both in that office and in that of the treasurer.

As the day of opening the exposition draws near, two new bureaus must be created for the operating purposes of the exposition. These comprise the department of admissions and collections—which has to do with all ticket sales and their collection and with the operation of all concessions, in so far as applies to the percentages or money to be paid by them to the exposition—and, lastly, the bureau of awards. To appreciate what all that has been mentioned means in the line of constant, endless, tireless application on the part of those who are the directing forces of an exposition, it may be interesting to learn that the whole period of the life of the Pan-American Exposition from its inception to its close will comprise but thirty months. This great amount of work, with the endless detail involved in its carrying out, has been made possible only because of the application to the problem of the abilities of many persons who had experience in similar lines of work, aided by the most hearty, loyal and intelligent support of the Directors of the Exposition and the ability shown by the Director of Works.

While all this is true, and equally so the fact that the operation of an exposition is now fast becoming a science in many of its branches, there still arise each hour a sufficiently large number of questions and difficulties to tax severely the patience, tact and physical capacity of those who are directing its affairs. No system of exposition organization can be devised that can be relied upon to operate effectively and properly which leaves open any possibility of something failing to be done because of divided authority; and the only ideal exposition organization would be, hence, one that places every one and everything connected with its work, from the inception to the conclusion of the undertaking, under the absolute personal control, direction and unquestioned authority of one strong, guiding mind and hand.

THE SOUTH LAGOON.

ELECTRICAL PROGRESS DURING THE LAST DECADE.

By Michael Idvorsky Pupin.

THE Pan-American Exposition in its electrical aspect forms a splendid termination to the electrical decade which began at the Frankfort Electrical Exposition in 1891.

This last exposition witnessed one of the most splendid experiments in the electrical transmission of power by new methods, which had never before that time been tested on anything like a commercial scale. Briefly stated, the method consisted in employing electrical currents of a very high tension, which were generated by means of the water-power at the Falls of Lauffen and then transmitted over a distance of about one hundred and fifteen miles to the Electrical Exposition grounds at Frankfort, where they were transformed to ordinary tension and employed for electrical lighting and mechanical power. The extraordinarily high tension was not, however, the characteristic feature of the system; it was the novel method of using a combination of vibratory currents in such a way as to produce a rotary magnetic force and in this way enable the consumer to employ electric motors without commutators and thus avoid all the serious objections of sparking. This experiment was a splendid success, according to the opinion of the best scientific authorities. Their verdict was a powerful stimulus to those who at that time were engaged in this country in developing the grand project of utilizing the water-power of Niagara Falls for electrical power transmission purposes. This magnificent project is now completed, and forms, although a score of miles from the Pan-American Exposition, the most prominent electrical feature of this magnificent show. Every man, both lay and technical, who goes to Buffalo to see the electrical exhibits there is attracted chiefly by the sight that is in store for him at the works of the Niagara Power and Construction Company at Niagara Falls. Methods and apparatus employed by this most enterprising company form the most complete illustration of the progress in technical electricity during the last decade, and the progress has been a most magnificent one. It consisted chiefly in working out the details of methods and apparatus conceived and partly worked out some time before the beginning of this decade. The invention of the induction motor and the so-called polyphase combination of oscillating currents, due to the combined labors of Tesla, Ferraris, Bradley, Wenstroem and others, forms the foundation of the new system employed at Niagara Falls for transmission of electrical power, and it may safely be asserted that by far the most important electrical exhibits at the Pan-American Exposition deal with the various stages of development of the system during the last ten years.

The exhibit next in importance to those just referred to is that of Marconi's system of wireless telegraphy. Eight years

ago, Sir William Preece, at that time the head of the postal and telegraph system of Great Britain, read quite a lengthy paper at the Chicago Electrical Congress, describing a novel method of electrical communication without interconnecting wires between the stations. That suggestion, however, was entirely different, both in its principle and in its application, from the Marconi system, which is a product of the last decade. It is as striking as it is novel, and the scope of its application to marine telegraphy appears to be very extensive. Credulous and sanguine people have suggested that in due time this system, if perfected, will enable us to dispense with the very expensive and complicated submarine cables, but it may be safely predicted that, judging from our present knowledge of electrical principles, the expectations of these optimists will in all probability never be realized by Marconi's system, nor by any other system evolved from Marconi's fundamental devices and the experience which he has gained in perfecting these devices.

The submarine cable is, to be sure, an expensive and complicated means of submarine intercommunication, but scientific men have, from the very time when the first submarine cable was laid in 1858, felt that the rapidity with which electrical signals could be sent over such a cable must be capable of a very considerable increase. The author of this brief sketch has actually succeeded in showing, both mathematically and experimentally, that the expectations of these scientific men were well founded. A new method of constructing Atlantic cables has been evolved which will enable us to send submarine messages with the same rapidity and with the same facility with which we send them now over ordinary telegraph wires. The method is an extremely simple one, and consists in inserting at periodically recurring points of the cable small coils of wire. The extra expense incurred by the insertion of these coils is small, and the mechanical difficulties introduced by these coils into the method of laying submarine cables are not serious. A cable thus constructed enables us not only to send telegraphic messages over it with great rapidity, but even to telephone over it. This invention also is a product of the decade.

Two more novel exhibits of the Pan-American electrical exhibition shall be mentioned here, as being decidedly products of the last decade. I refer to the Nernst lamp and to Paulsen's wonderful telephonograph. The Nernst lamp is a striking departure from both the ordinary incandescent lamp and the arc lamp. It is founded upon the physical fact that certain substances which in ordinary circumstances are non-conductors become when heated fairly good conductors. Professor Nernst employs for his conductors cylinders of various lengths and thicknesses, depending on the candle-power which he wishes to develop. The cylinders are made up of materials into the composition of which enter principally rare earths—yttrium, rubidium, thorium and so on. These earths can stand being heated up to very high temperatures without disintegrating, and the higher the temperature to which a substance can be heated, the more efficient is its light-giving power; hence the very high light-giving power of the Nernst lamp. It is extremely simple in its construction, since it requires no vacuum, as does the incandescent lamp, nor any mechanisms for regulation, like those of the arc lamp.

The Paulsen telephonograph is a very neat and exceedingly instructive product of electrical ingenuity, and depends for its operativeness upon a somewhat novel scientific fact. It has long been known that when a piece of steel is subjected to the magnetizing force of a permanent magnet, or that of an electrical current, it will retain its magnetic property for a long time after the magnetizing force has been removed; but it has not been known that this remanent magnetism of steel is exactly proportional to the external magnetizing force, when this force is small. The operativeness of the Paulsen apparatus depends upon this very law of proportionality. What Paulsen does is this: A long steel wire is wound spirally on a drum which can be rotated; during the rotation, the wire passes under the pole of a small electromagnet. Suppose, now, that the helix which energizes this small electromagnet forms a part of a telephone circuit. A person speaking at the transmitter sets up in this telephone circuit a vibrating elec-

trical current corresponding to the voice of the speaker. This vibratory electrical current produces in the small electromagnet a corresponding vibratory magnetic force, and this magnetic force again produces a permanent magnetization in the rotating steel wire as it passes under the pole of the electromagnet during the rotation of the drum. The permanent magnetization of the steel wire varies from point to point of the wire, following exactly the same law as the indentations of the wax cylinder of an Edison phonograph, as produced there by the vibrating stylus. Take now this magnetized steel wire and pass it under the pole of the same electromagnet, and you will have an electromotive force induced in its helix which will produce a current in the circuit that will be an exact representation of the current which produced the magnetization of the steel wire. This current, passing through the coil of a telephone receiver, will reproduce in the diaphragm of the receiver the exact words of the speaker which in the first case were instrumental in the magnetization of the steel wire.

Splendid as has been the advance of electricity on its technical side during the last decade, it will still appear to a careful student insignificant when compared with the great advances that have been made on the purely scientific side of electricity. The principal impulse of these advances was furnished by Professor Roentgen's great discovery of the X-rays in 1895. Ever since that wonderful discovery was first announced, scientific men have tried to answer the puzzling question: What is the nature of this new radiation which is capable of penetrating through bodies, like metals, which, up to the time of Roentgen's discovery, were considered as almost absolutely opaque?

The distinguished French physicist, Becquerel, showed that certain salts of the metal uranium were a continuous source of an invisible radiation which had many of the properties of the X-rays. Other scientific men soon added to the list of bodies which possess the same peculiar physical properties. Among these scientific pioneers should be particularly mentioned Madame Curie, who discovered one of the most powerful radiants of the new and mysterious radiations possessing all the essential properties of the X-rays. In the mean time Prof. J. J. Thomson, of the University of Cambridge, kept up a careful exploration of all the electrical processes accompanying the electrical discharge in a Crookes tube, where Roentgen had found the mysterious X-ray.

In this connection, another most important discovery, made during the last decade by Professor Zeeman, of Holland, should be mentioned here. It is this: When a substance is volatilized by the extreme heat of an electrical spark, or otherwise, and rendered incandescent, it will emit a light which is as characteristic of the substance as is its molecular or atomic weight. The light emitted by an incandescent gas (and every substance can be transformed into a gas by a sufficiently high degree of temperature) consists of a mixture of a large number of elementary colors, or vibrations, which are shown in the spectrum of a gas by separate luminous lines, which have a definite position. Zeeman discovered that if such a luminous gas is placed between the poles of a very strong magnet, a large number of these lines will split up into several component lines, separated from one another by larger or smaller intervals. This effect of the magnetic force upon the spectrum of an incandescent body is called the "Zeeman effect"; and the electromagnetic theory of light shows that the "Zeeman effect" is possible only under the hypothesis that material bodies consist of ultimate particles which carry electrical charges and that the vibration of these electrically charged particles is the source of light emitted by incandescent bodies.

Going back now to the discoveries of Roentgen, Becquerel, Curie and others, and particularly to the epoch-making investigations of Thomson, it should be observed that the most important result of these investigations is an experimental proof of a new physical theory of the constitution of matter. According to this theory, atoms, as they enter into chemical combinations, are not simple, indivisible bodies but most complex aggregations of components, or corpuscles, much smaller than the chemical atoms themselves, and the only property that we can predicate of these corpuscles with certainty is that they carry electrical charges.

ACETYLENE GAS.*

By Lieut.-Col. David Porter Heap, Corps of Engineers, U. S. A.

IN 1836 Edmund Davy, an English chemist, secured a by-product to the production of metallic potassium which would decompose water with the evolution of a gas containing acetylene.

In 1862 Woehler announced that calcium carbide, which he had made by heating an alloy of zinc and calcium with charcoal to a very high temperature, would decompose water and yield a gas containing acetylene like Davy's compound.

Up to 1892 these two substances—calcium carbide and its product, acetylene—were practically forgotten.

In the mean time the modern electric furnace had been developed, and in the year 1892 Mr. Thomas L. Wilson, while conducting experiments at Spray, North Carolina, for the purpose of preparing metallic calcium by operating on a mixture of lime and coal, secured a melted mass of dark color.

This mass, when thrown in a neighboring stream, evolved a great quantity of gas which, on being lighted, burned with a brilliant but smoky flame.

Thus were calcium carbide and acetylene gas first prepared on a scale large enough to be of value commercially.

Calcium carbide is now produced commercially in many places—notably at Niagara Falls, New York, where the requisite electric current to produce the high temperature needed (4500 Fahrenheit) can be readily and cheaply obtained.

Ground coke and lime are intimately mixed in the proper proportions and placed in the electric furnace; the result is that fifty-six parts of lime and thirty-six of coke will make sixty-four parts calcium carbide and liberate twenty-eight parts carbon monoxide.

If the lime and coke are pure, an ingot of pure carbide will be formed, surrounded by a crust of material less pure because partially unconverted.

Calcium carbide is dark brown or black; crystalline and brittle; has a specific gravity of 2.22 to 2.26; may be heated to redness without change; will soften and fuse in an electric furnace; will not burn except when heated in oxygen; and will keep indefinitely if sealed from the air, but will absorb moisture from the air and gradually slake like ordinary lime. If placed in water, or in any liquid containing water, it will effervesce vigorously and liberate acetylene gas.

Calcium carbide consists of lime and carbon ($Ca\ C_2$). In contact with water, the lime combines with the oxygen of the water, making slaked lime, and the carbon with the hydrogen, making acetylene gas ($C_2\ H_2$). One pound of absolutely pure carbide will produce five and one-half cubic feet of gas; but, as absolutely pure carbide is not made commercially, the usual ratio is one pound of carbide to four and one-half cubic feet of acetylene.

Acetylene is a colorless gas possessing an offensive odor similar to decayed garlic, and so penetrating that one part of gas in ten thousand of air is distinctly noticeable—a valuable property, as by it leaks can be known long before they become dangerous. The odor is entirely due to impurities in the coke and lime; pure coke and pure lime will yield pure carbide. When the gas is burned in a proper jet, there is no odor.

Water will dissolve its volume of acetylene if intimately mixed, but if the acetylene rests on top of the water, the top layer of water becomes saturated and prevents the gas from penetrating farther.

Like all gases which burn in the air, it will explode when mixed with air in the proper proportions, prior to ignition. One part of acetylene with twelve and one-half parts of air will produce perfect combustion; the same proportions will also produce the most violent explosion, though it will also explode with a greater or less proportion of air, varying from three to eighty-two per cent.

Acetylene gas, unmixed with air, is not explosive at ordinary pressure, and modern burners are so constructed that the air for combustion is supplied after the gas issues from the jet.

The illuminating power of acetylene, in

*The author is indebted for many of the facts in this article to a pamphlet entitled, "The Application of Acetylene Illumination to Country Homes," written by Prof. G. G. Pond, Ph.D.

a proper burner, is greater than that of any other known gas; the flame is absolutely white and of great brilliancy; its spectrum closely approximates that of sunlight and consequently it shows the same colors as daylight. It is strongly actinic and well adapted for photography. It neither heats nor pollutes the air so much as coal-gas.

It is one of the cheapest illuminants known—kerosene being its closest rival in economy. One pound of calcium carbide, costing at the present price three and one-half cents, will make four and one-half cubic feet of acetylene gas, which will produce two hundred and twenty-five candle-power for one hour. It will take fifty-six and one-fourth cubic feet of ordinary city gas to give the same amount of light, and at one dollar per thousand feet, city gas would cost five and six-tenths cents to produce the same light as acetylene.

Although there are many other uses of this new gas, the most important and the most valuable is as an illuminant, and the very fact that its generation, by adding water to carbide, is so easy, has flooded the Patent Office with a number of crude appliances—the inventors of which did not understand the properties of the gas nor the simple precautions to be taken to insure its safe generation.

At the Pan-American Exposition—where I had the honor to be the chairman of the Committee on Awards to which was assigned the examination of the acetylene generators exhibited—a set of requirements was drawn up by the committee which, if followed, would produce a nearly ideal generator. The generators were examined and tested, not only according to the directions given by the makers, but also by experiments which might be made by extremely careless and ignorant attendants—the object being to find out how nearly "fool-proof" the generators had been made.

Each requirement was given a certain weight, by which the marks given to the requirement were to be multiplied.

The highest mark given to any one requirement was ten, and in order to compute the final rating of the generator this mark was multiplied by the weight given to each requirement in the table below. A generator which complied with every requirement would thus receive a total of one thousand one hundred and sixty points.

If an intending purchaser would use this method in examining a generator and refuse to buy one which did not receive ninety-five per cent. of the above number of points, or one thousand one hundred and two points, he would be sure to select a safe and satisfactory generator.

REQUIREMENTS FOR A GOOD STATIONARY ACETYLENE GENERATOR FOR HOUSE-LIGHTING.

	Weight
1. The carbide should be dropped into the water. (This rejects all water-feed generators.)	10
2. There must be no possibility of mixing air with the acetylene gas.	10
3. Construction must be such that an addition to the charge of carbide can be made at any time, without affecting the lights.	8
4. Generators must be built of substantial materials, well adapted to their purpose	10
5. They must be entirely automatic in their action—that is to say: after a generator has been charged, it must need no further attention until the carbide has been entirely exhausted	8
6. There must be a simple method of determining the amount of unconsumed carbide	7
7. The various operations of discharging the refuse, filling with fresh water, charging with carbide and starting the generator should be so arranged that it is not possible to do them out of their proper order	5
8. The operations mentioned above must be so simple that the generator can be tended by unskilled labor, without danger of accident	8
9. The gas pressure at point of delivery should remain practically constant, irrespective of number of jets burning or quantity of carbide or of gas in the generator	5
10. The pressure should remain equal in all parts of the machine, and must never exceed that of a six-inch column of water	4

11. The pressure in service pipe should never exceed that of a three-inch column of water, and provision must be made to blow off in the air at the pressure of a six-inch column.	4
12. The water capacity of the generator must be at least one gallon to one pound of carbide.....	4
13. There must be a convenient way of getting rid of the slaked carbide without escape of gas.	5
14. When the lights are out, the generation of gas should cease..	2
15. The gas should be delivered to the burners clean, cool and dry.	5
16. Heat of generator must not exceed two hundred degrees Fahrenheit.....	6
17. When generator is recharged, there should be no escape of gas.	5
18. If the generator is left idle for a long time, there should be no deterioration of the carbide...	2
19. The gas holder should be of ample capacity and made gas-tight with a water seal.....	6
20. The carbide should be automatically fed into the water in proportion to the gas consumption.	2

In addition to the above, generators must conform to the rules and regulations of the fire underwriters.

The purchaser of a generator should observe the following additional precautions:

Carbide should be kept in air-tight cans and stored in a dry place.

The generator should be situated in a place where the water will not freeze.

All pipes should be very carefully tested for leaks. A leak can be found by putting soapy water in the suspected part. Never hunt for a leak with a light.

The generator should be charged in daytime, and no light should be brought within twenty feet of it.

It is a good plan to discharge the refuse in a sewer, as it is a good disinfectant.

The Acetylene Building is the most brilliantly and beautifully lighted in the grounds; it sparkles like a diamond, and is the admiration of all visitors. In it are generators of all types—most of them supplying the gas for their own exhibits—several being the latest exponents of the art, so simple in operation that they can be safely managed by unskilled labor; in fact, the "brains are in the machines," and when the attendant has charged them with carbide and filled them with water—given them food and drink—they will work steadily until they need another meal.

Acetylene gas has proved its case so far as house-lighting is concerned.

Among its other applications are: search-lights for small yachts (the same generator also lighting the yachts); mast- and side-lights for steamers; car-lighting; lighting railroad stations; bicycle-lamps; carriage-lanterns; photography; lights for stereopticons; and signaling devices—the latter having recently been improved and made light and portable, promising to be of great utility to the United States Signal Service.

It is also used for heating purposes in cooking and laundry stoves and in Bunsen burners, and explosively in gas-engines.

One peculiarity of acetylene is that the greatest light which can be successfully and economically obtained from a single burner is about fifty candle-power. The same power is produced more conveniently from what is known as the fourth-order kerosene lamp in the light-house service; consequently there is no object in using acetylene gas for light-house purposes at stations provided with keepers.

Experiments are now in progress at the light-house depot at Tompkinsville, Staten Island, New York, to determine its value for lighting beacons for forty days continuously without attendance; the idea being that a number of beacons so lighted need be visited but once a month, thus reducing the cost of maintenance.

The special application in view is at Mobile Bay, Alabama, where there are sixteen beacons to mark the channel; and if the experiments prove successful, these beacons can be charged in one day every month, and will need no further attention.

No device which is both practical and safe has yet been made to use acetylene for gas-lighted buoys; liquefied acetylene has been tried, and though it gave a good light, difficulties were encountered in its successful operation, and besides, it has not yet been demonstrated that acetylene in this form can be handled with absolute safety.

O YOU who weep in discontent
And think your strenuous toil has failed,
Remember one who sailed and sailed
Until he claimed a continent.

Fixed as the stars his purpose was,
And mightier than he knew, his quest.
He sought an island at the best,
And found the great Americas.

When, at God's word, the earth wheeled into space,
Three sleepless oceans stood to guard my place,
And at my feet, a fond duenna sea
Watched as I ripened for my destiny.
In other lands, rude rapine reigned supreme
While I lay smiling in my maiden dream.
While other countries hurried to decay,
The silent Centuries tiptoed on their way
And left me, unmolested, to my fate.

Half the old world had grown degenerate
When Progress came, and woke me with a kiss.
The sentinel Seas were witnesses to this,
And God himself gave sanction in that hour,
Bestowing Freedom as my wedding dower.
Good Mother Nature gave me grains and gold,
Vast fertile fields and mines of wealth untold,
Knowing the spouse of God's prime minister,
Supreme and noble Progress, must confer
Wide benefits upon mankind, and share
With all who asked her succor and her care.

The generous hostess of admiring earth,
I entertained all nations at my hearth.
Far in the south, my beauteous sister wept
The monstrous wrongs inflicted while she slept.
A rude despoiler crushed her in fierce arms
And robbed her of her riches and her charms.
Lustful with greed and insolent with strength
All spendthrift monarchies become at length.
Spain was an autocrat, inspiring fear,
And even Progress dared not interfere.

Fair, opulent-hearted sister with sad eyes,
How long your prayers ascended to deaf skies!
Justice walks slowly when her pathway leads
Through courts of kings, encumbered with harsh creeds.
Yours was the lot to suffer and to wait,
Mine to move forward, with my peerless mate.

Behold us in the glory of our prime,
Astounding wisdom and surprising time.
We shake Tradition on its tottering throne,
And from Convention wring a startled groan,
As some old method or worn creed is brought
Beneath the sickle of advancing thought.
We are the educators of the world:
Our free-school banner, to the winds unfurled,
Bids all men *think*. Our bold, corrective press
Bids all men hope for justice and redress.
Peace long has been our watchword; brief and few
Our bloody wars: 'tis thus our glory grew.
When honor forced or sympathy impelled
Our hosts to battle, watchful eyes beheld,
Close following where our conquering armies trod,
The vast progressive purposes of God.

He who is mortal must be prone to err.
Too much ambition in my veins may stir.
Too generous to be just, I may have been
(My own excluding, to let others in);
And too much zeal my wisdom may impair.
Yet where our banner once is planted, there
Humanitarianism, cleanliness
And education beautify and bless
This slow-evolving world, and aid mankind
To that best strength which comes from being kind.

The earth's true freedom yet shall spring from me.
I am the mother of great men to be—
Men who will toil for universal good,
And found Republics, based on brotherhood.
When all Americas unite in one,
Then shall we find the Golden Age begun.
One flag, one purpose, godlike in its scope—
To give all men the right to work and hope;
To banish charity, and in its place
To throne fair Justice in her regal grace;
To make the glittering crowns of idle kings
Seem like the caps of fools in sawdust rings,
And hoarded wealth a public badge of shame:
March on! march on! to this majestic aim!

THE EXHIBIT OF HUMAN NATURE.

By Lavinia Hart.

THE most exhaustive, the most interesting, the most instructive exhibit at the Pan-American Exposition is the exhibit of human nature.

This exhibit is not confined within the four walls of an artistic building nor restricted to the products of North and South America. There are contributions from every country of the world, from all the strata of civilized society; and they fill the buildings, cover the grounds, monopolize the waterways and revel in the Midway, till the swaying, changing mass of color, size, form, quality and kind fills one with awe for the grandeur of this human exhibit.

THE GUARDIAN OF ALT NÜRNBERG.

There are types so numerous they make the fall-pippin display in the Agricultural Building look meager—so complex, the machinery in the Graphic Arts would in comparison be child's-play to decipher.

There are the cultured types of the East, the crude types of the West. There are "city-broke" men and women who regard the fair as a bit of color or another incident; and men and women fresh from the farm who regard it with wide-eyed wonder, and to these the fair is an era, to and from which all other events shall date. There are women in rustling robes who drive to the Lincoln Park Gateway and view the fair through lorgnettes; and women in short skirts and shirtwaists who come in the trolleys and get much more for their money. There are thoughtful students and giggling girls; tourists who vainly try to see it all; whole brigades of shirtwaist men and short-skirt girls who, with guide-books and worried expressions, follow the man from Cook's. There are brides and grooms who are bored by the crowds, and crowds who are delighted with the brides and grooms. There are strait-laced dames who could not show you the way to the Midway; and tight-laced dames who could not show you the way out of it; and fair American girls who would not know when they were in it; and types from Hawaii and the Orient that make a violent background for American womanhood.

There is every type at the Pan-American Exposition that ever was known, and the harmonious blending of them all proves advancement in the spiritual as well as the material exhibits.

The first type that greets you is the gateman, belonging distinctly to the Sphinx species. The second is one of an ambitious squad of boys, who informs you that a daily permit at fifty cents per diem is necessary for your camera. You declare

THE OSTRICH FARM ON THE MIDWAY.

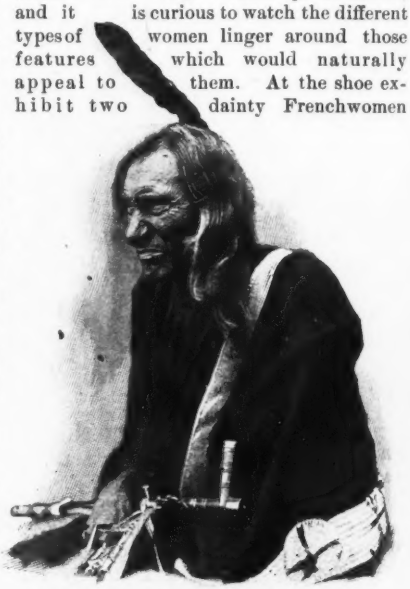
it's an outrage; but you've got the kodak craze, and deserve to pay. Mentally, you resolve to take all your pictures in one day. Actually, you bring the camera every day of your stay, making daily unsuccessful efforts to evade the squad. This type is the detective in embryo, and closely resembles a small animal known as the ferret.

Having paid for the privilege, the only way to get even with the management is to snapshot everything in the grounds. The first subject that appeals is a little old woman whose face is framed in a sunbonnet, which sunbonnet is framed in beds of tulips and orchids from a Long Island exhibitor's hothouses. The little old gardener tells you her name is "Mary," and she lives between the Exposition grounds and the poorhouse, and has one hundred and two plants of her own, which she'll be glad to give you slips of; but things have been running down lately, and the pension's stopped since Johnny died, and Lucy's getting tall and expects to go out in company soon, so she wouldn't like to go to the city to work; and when it come to working in the Exposition or working toward the poorhouse, why, the fair grounds were like play—specially as she always did love flowers so.

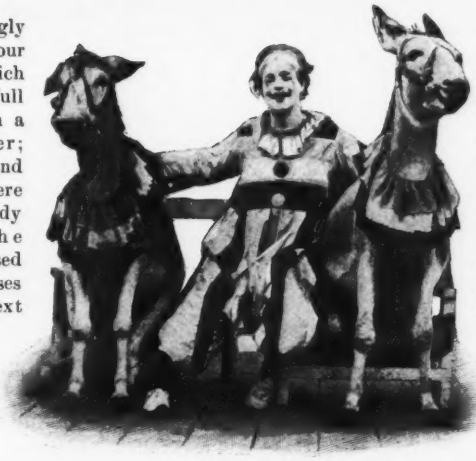
Mary is a common type—but Mary's daughter is commoner.

After Mary and her flowers, one observes the Pan-American small boy—the same that we have always with us, except that he is without restriction, and the air of Buffalo agrees with him. He has a way of cutting across the flower-beds to shorten distances; and the state police, who overtake him without demolishing the flower-beds, have a way of propounding the value of tulips and underrating the comforts of the town jail which the small boy never forgets. These state police are a new type to the New Yorker, who is used to beef and brawn on the force. They are long, lean, muscular fellows with military bearing and uniform and intelligent faces. There are also on the grounds camps of state troops and a small army of attachés for the exhibits in the Army and Navy Building. So the Exposition brass-button girl is happy—and the type she adores gets the adulation on which it thrives. No building at the fair is so popular with the younger women as the Army and Navy Building; and no girl is so envied as she who happens to know an officer, who does the honors in one of those cozy little white tents, with chests containing everything you don't expect.

The building next in popularity to the Army and Navy is the Manufactures and Liberal Arts. Here women predominate, and it is curious to watch the different types of women linger around those features which would naturally appeal to them. At the shoe exhibit two dainty Frenchwomen



THE PATRIARCH OF THE INDIAN CONGRESS.



A MIDWAY CLOWN.

gazed admiringly for nearly an hour at a machine which turned a heel a full hand high upon a red kid slipper; at the cloak and fur exhibit there wasn't one dowdy woman in the crowd that pressed against the cases and studied next season's fashions; at the sporting-goods exhibit, girls in short skirts and men with muscle leaned upon the railing and discussed "putters" and "brassies" and "remades"; up at the north end of the building—what was the attraction for the crowd that edged and pushed? There were old women and middle-aged women, neat women and shiftless women, thin women and fat women, and they all had housework wrinkles—little creases that settle about the eyes and mouth from little frets and worries. They crushed forward, trampling one another's toes and poking one another's ribs, and their eagerness was of the sort that characterizes a hungry dog's regard for raw meat. I knew it was a household implement before I heard a suave voice say: "Ladies, it is so simple a child can use it. Other washers tear the clothes; ours will wash lace curtains without pulling a thread, or cleanse a carpet with ease. You can do a six weeks' wash of an afternoon with our machine, and find it as pleasant as a matinée. Come, madam, let me send you one on trial. You look as if you would appreciate it."

A CAIRO TYPE.

The woman addressed was small and wiry, and the housework wrinkles looked as if they were there to stay. Her admiring gaze was lifted from the washing-machine to the man's face, as she said earnestly, "It looks like it would be such a comfort."

"Comfort, madam? Why, our washing-machine is unquestionably the first principle of a happy home. Let me send you one on trial free."

"I guess I'll wait," said the little woman timidly.

"Never get another chance like this, ma'am."

"I'll speak to John about it."

"Does John do the washing?"

"No," drearily, "he doesn't; and he doesn't have to pay anything for the old tubs, either."

Whereupon all the women thereabout, who had been following the colloquy with the keenest interest, looked knowing and appreciative of this vindication of their down-trodden sex, and the crowd dispersed in high good humor.

In the center of the Manufactures Building was a gathering which defied classification. All types of women were huddled together, rich and poor, esthetic and commonplace. It was lunch-time, and they were engaged in the work of managing a free lunch. Women whose diamonds were gems and whose gowns were creations elbowed women who might have

been their cooks, to get free biscuit made from the "finest baking-powder on earth"; free pancakes made from the only pancake flour that wouldn't result in sinkers; free soup from the only cans containing real tomatoes; free samples of all the varieties of mustard, jam and pickles; free sandwiches of minced meat; free cheese, preserves, chow-chow, plum-pudding, clam broth, baked beans and pickled lobster.

"Ladies," said the girl behind the prepared-flour counter, "you all know considerable about sponge-cake, but unless you have used our flour, you don't know it all. Now, this sponge-cake I am cutting——"

No reflection was intended and no offense taken. The ladies devoured the sponge-cake, and finished their meal with free samples of seven kinds of lithia water, four highly recommended mineral waters and three brands of unfermented grape-juice.

"Well," said a fat lady from Seneca County, "that meal's the first thing I've got for nothing since I landed in Buffalo."

I knew she was from Seneca County, because she had an altercation with the grape-juice agent.

"You folks don't know how to raise grapes," she said, sententiously; "you ought to come down to Seneca County to learn about vineyards."

"Madame," said the grape-juice agent with a superior smile, "we have hundreds of acres devoted to——"

"Don't care how many acres you've got," said the fat lady, smacking her lips; "we've got the grapes. And our grapes jell, that's what our grapes do. I tried yours once—had a crate sent down from my sister Susie's. Tried 'em six days. Jell? They never showed the first symptoms. On the seventh day I rested, and gave the whole mess to the hogs. No, sir, your grapes can't jell in the same kettle with Seneca County grapes," and the fat lady took a third glass of grape-juice and passed on.

All of the fifty thousand people who visit the Fair daily don't patronize the advertisers' free-lunch counters, however, or the manufacturers would have to go out of business. Some bring luncheons in boxes and baskets and spread them on the benches or beneath the trees near the Delaware Park entrance; and the wise ones, who find it hard enough traveling even without luggage, go to the beautiful buildings on the fair grounds and take chances on hard-boiled eggs at five cents or make sure of them at ten. And these wise ones have a relish with their luncheon which is all the sweeter for being unsuspected. The young women behind the counters are of a type they've long been waiting for—angular, sharp-featured, spectacled, aggressive, the schoolmarm type that instilled into their childhood all the bitterness it ever knew.

A gentleman of sixty swung on a high stool before a counter where presided the perfection of this type. Perhaps a strong resemblance made vivid the memories of half a century back and goaded him on. For forty minutes he wiped out old scores and made the schoolmarm miserable. Why wasn't the chowder hot? How many times had the beans been warmed? Did the lady forget to put tea in the pot? Was that slipshod fashion the way to make a sandwich? Didn't the lady know her business, anyway?

It wasn't the lady's business. She would have him understand she taught school in the Berkshires.

The gentleman hadn't doubted she taught school. But why was she here then?

She was working her way through the fair, and intended lecturing on it next winter.

The old gentleman looked sorrowful. Such a pity! The field was overrun with people who were used to it and knew how. She probably never would get an engagement. It was for the best, however. What would the dear children do without her?—they must love her so! But the experience would count. If any one should ever ask her to marry him and keep house for him, she'd find her knowledge of beans and boiled eggs would come in handy. How much was it? Two-twenty! It was well worth it. The old gentleman laid an extra quarter on the counter.

"For you, my dear," he said, "and don't squander it. You'll need it toward a trousseau, in case he ever turns up."

When he got to the door he turned back, and met a glare that fifty years before would have frozen him with terror. The old man

chuckled. He had outlived the age when birch and hickory rods troubled his dreams and smarted in his waking hours.

Another variation of the schoolmarm type held forth in the Horticulture Building. She occupied a booth decorated with spheres, charts, maps and tracts, and tried to convince Pan-American visitors that the earth's habitable surface is concave instead of convex. The crowd, whose tongues take on a kind of Exposition looseness, chaffed her considerably and asked vital questions at the wrong moment, each time necessitating a fresh start. When the young woman at last was permitted to reach the end of her argument—which, fortunately, no one understood—an old lady asked pertinently what difference concavity or convexity would make to the folks living on the earth, anyway.

"It will make this difference," replied the young woman: "we can prove that the earth is concave, while Copernicus never proved, but only supposed, the earth to be convex. Now if you start with a supposition, you have no solid foundation for your science, astronomy, religion or the relations of God and man. But if you start with knowledge——"

"What's knowledge got to do with religion?" interrupted the old lady. "Didn't the Lord say all you needed was faith?"

"Oh, faith is all very well," replied the expounder of "Koreshanity," "but knowledge is better."

"Humph!" said the old lady. "You ain't married, be you?"

"No, indeed," replied the young woman. "Do I look it?"

"No," said the old lady critically, "you don't; and you don't talk it. If you was married, you'd figure that little knowledge and much faith was the surest road to happiness. I reckon the Lord knew what he was talking about."

The women laughed, and the men—where were the men? All over the fair grounds there seemed to be a dozen women to every man.

From the Horticulture Building to the Graphic Arts, to the Temple of Music, the Ethnology Building, the United States Government Buildings and across the beautiful Esplanade with its flowers and fountains, there were women, women, everywhere—old women in sedan-chairs propelled at fifty cents an hour; tired women in rickshaws pulled by Japs at a dollar an hour; athletic women in calfskin boots at only the cost of leather per hour. The men, where were they?

THE WISCONSIN STATE BUILDING.

Packed like sardines in the United States Fisheries Building, grouped in twos and threes and bunches, their backs to the exhibits, telling fish-stories.

"Don't think much of that line of trout," said a man with chin-whiskers. "Why, up near our camp in the Adirondacks, we don't think anything of hauling them in weighing twenty to thirty pounds."

The man with the side-whiskers nodded absently and reckoned the trout on exhibition were as big as most trout grow.

"The bass are rather cheap-looking, though," he admitted. "We've got an island up in the St. Lawrence, and the bass up there certainly are wonderful! Great big fellows, and so plentiful they rise up in schools and bound over on the island, waiting to be cooked for breakfast."

"Yes," assented a clean-shaven boy, who was his son, "I've seen 'em come right alongside a brushwood fire outdoors and lie there till they were broiled."

The man with the chin-whiskers looked meditative.

"Well," he drawled at length, "I'm not much on bass. Angling for trout's the real sport, and the stream near us is just packed with 'em—great speckled beauties; and I never did see fish multiply so. Two years ago I caught a fairly good specimen. Managed to get it in the boat, but the head and tail hung out both ends. It was the end of July then, and we leave up there in September. I knew we couldn't finish eating that fish before we went back home, so what was the use killing it? I resolved to put it back in the stream; but before doing so, I tied a big blue ribbon in its tail. Now, do you know, that fish has grown to the size of a human in two years, and multiplied the trout in that stream by two or three thousand."

He of the side-whiskers stared and his son gasped quickly. "But you can't prove all those fish are the result of that same trout?"

"That's just what I can," said the man with the chin-whiskers, profoundly. "Every one of those trout has a blue ribbon tied to his tail."

Father and son gazed vacantly into space, and the latter remarked presently, "The tackle exhibit is the finest I ever saw."

AN AFRICAN MEDICINE-MAN.

Another type of man patronized the barns and stockyards. His boots squeaked, his clothes were light-colored and store-made, his shirt was "biled" and his cheeks were tanned.

" 'Prize Pulled Jersey,' " remarked one of these, reading a sign over a white-and-buff cow. "Humph! No better'n our Bouncer."

"S'pose it's on account of those white spots, Hiram?" suggested a woman in a print frock, at his side.

"Gosh! that's just like a woman. Spots can't put no cream in the milk, kin they? It sez, 'Prize Pulled Jersey,' and I guess it means it's got a pull, sure enough. I reckon no sech critter's thet could walk off with the prize of two cont'nents, and American cont'nents at that, without a pull. I ain't been farmin' forty year for nothin', and I know a choice head of cattle when I see it."

Whereupon Mr. and Mrs. Hiram linked arms and inquired the shortest cut to the Midway.

Three-quarters of the people at the Fair had followed the same route. From the Beautiful Orient to the Indian Congress the streets were black with people—whites, blacks, Indians, Mexicans, Hawaiians, Japanese, Americans; all packed so closely together they merged into one composite type, whose chief characteristic was curiosity, whose motive-power was deviltry.

The atmosphere of the Midway is not conventional and a few inhalations produce immediate results, which are, first, a realization that Buffalo is a long way from home; second, a hallucination that nobody one knows will be met in this place, which seems so far removed from America; and third, a conviction that much knowledge may be gained from these representations of foreign countries and not one detail of the outfit should be overlooked.

In front of one of the theaters in the Streets of Cairo stood two elderly men with whiskers, studying the posters.

"Fatima—La Belle Fatima!" muttered the one with the green carpet-bag. "Does that sound like French to you, Deacon Lindsay?"

"N-no," replied the other slowly; "it couldn't be French, in the Streets of Cairo, could it? French things are apt to be pretty wicked. I wouldn't go in, if I thought 'twas French."

"But you think 'tain't French, eh, Deacon?"

"No, 'tain't French."

A long pause. Then the deacon said thoughtfully: "Course 'tain't goin' to make any imprint on me, but I'm thinkin' 'bout you. Do you s'pose it'd demoralize you?"

The man with the carpet-bag swung round with something of a swagger, and his eye emitted a gleam due to Midway inhalations as he said: "Say, Deacon, I've been

listenin' to M'randy's jawin' for nigh on twenty-two years, and I hain't got demoralized; I guess I'm proof agin Fatima's charms. Let's go see what she's like."

She was like—but that's another story.

There is considerable sameness about all the foreign types exhibited on the Midway, and they give a keen advantage to the American girl, who in figure, features, poise and intelligence is infinitely superior.

In the "Alt Nürnberg," where the American girl gathers in force for dinner and nibbles imported frankfurters at forty-five cents each, she looks like a bit of dainty Dresden china compared with the buxom Bavarian lasses who warble their native songs for her edification.

SOME MIDWAY SIGHT-SEERS.

At the Indian stockade of the Six Nations is the keenest instance of human progress exhibited in the whole fair. She is an Indian girl of twenty, tall, straight, bright-eyed, intelligent, well-bred and well-dressed. She is one of a numerous type, and a product of the Female Indian School. This particular Indian girl keeps a booth filled with Pan-American souvenirs and Indian gewgaws in the Six Nations stockade. Young men who pass that way look, then look again, and finally join the group of admirers outside the booth.

One afternoon the booth was deserted, except for a youth of the freshman-year type, whose devotion was impetuous.

"Winona," he said softly, when every one seemed to be beyond hearing distance, "you've got wonderful eyes."

The wonderful eyes remained fixed on the distant horizon.

"Winona, I've been at the fair six days, and got no farther than the tribes of the Six Nations. Won't you look at me?"

But the wonderful eyes only glanced coldly at the ardent face which rose above the fraternity pin.

"It is my wares you should admire, not me," said the girl, with a very fair English pronunciation.

"Hang your wares, Winona," said the youth; "it's you—it's your eyes that move me."

"They have not yet moved you to buy."

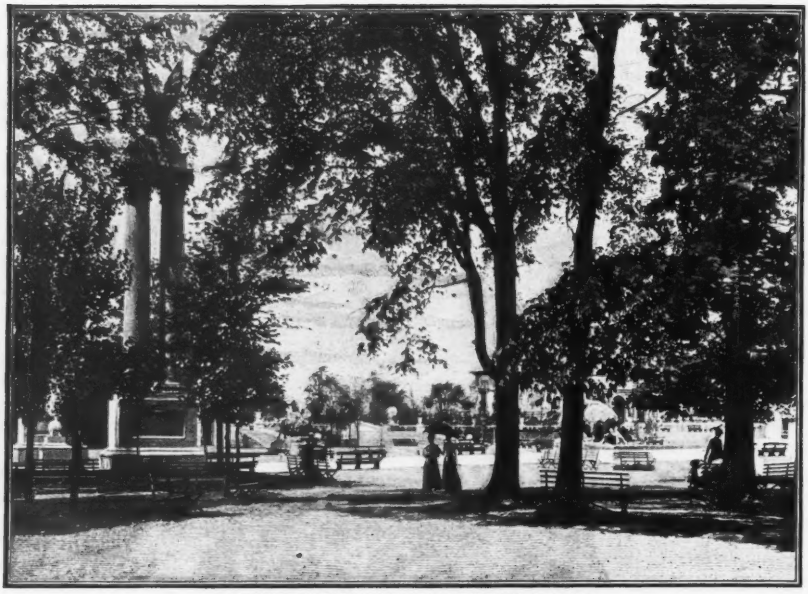
The girl raised her straight black brows and gave her admirer the full benefit of a glance from her "wonderful eyes," and the boy bought a pair of baby's moccasins, giving them back to her with a laughing "For your first papoose."

The Indian girl quickly grasped them.

"Ah!" cried she delightedly, "and they will just fit!"

Whereupon she pulled a very dirty Indian baby from beneath the counter and proceeded to tie the moccasins on its feet.

The original American girl of the redskin type was never destined to be a flirt.



A SHADED WALK NEAR THE TRIUMPHAL BRIDGE.

THE EDUCATIONAL INFLUENCE OF THE EXPOSITION.

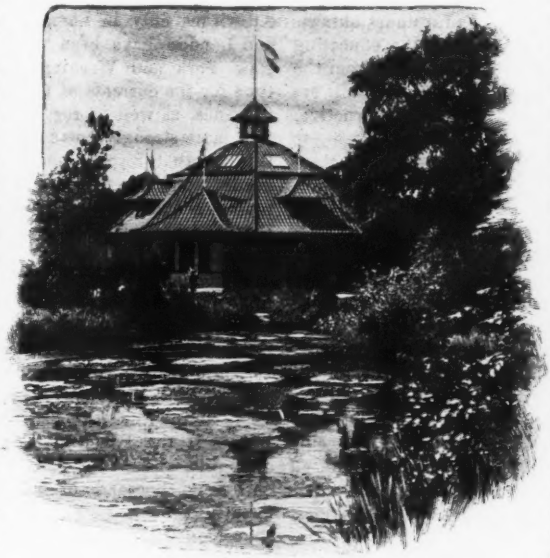
By Nicholas Murray Butler.

THERE are too many expositions, says the man of the world. He is tired of globe-trotting, jaded with sight-seeing and bored with life itself. But the tens of thousands of men and women—and children, too—who leave home for a serious journey but once or twice in a lifetime do not agree with him. To them, happily, life is full of interest and of awe. The newspapers and magazines create for them a thousand curious wants which they do not satisfy. They are constantly on the alert to learn more about the newest epoch-making invention, to see if possible with their own eyes, or to touch perhaps with their own hands, some of the world's wonder-working machines, or to feast upon typical art products of mankind, long familiar through verbal description and by photograph. These are the men and women to whom a visit to a great exposition is as full of novelty, of strange sensations and of charm as is a first trip to Europe. It is for many thousands a liberalizing and an educating influence.

The Pan-American Exposition at Buffalo seems to be singularly fortunate in the satisfaction which it offers to the earnest and intelligent visitor in just these educational aspects. It is, in the first place, compact, and therefore more readily and more fully comprehensible than if it were more complex and scattered over wider and more fatiguing areas. Because of this fact it makes an impression as a unit, and thereby forces its characteristics of harmony, proportion, striking sculpture, beauty of color and splendor of decoration upon the willing attention of even the most provincial of visitors. Of the art and architecture of the Pan-American I have no technical competence to speak, but even a layman in the arts cannot fail to notice the deep esthetic impression that the Exposition makes upon himself and those about him. This is education in the best

sense. It is a stimulus to fine feeling, to an appreciation of beauty in color and in form, and it is food for many subsequent feelings of the same sort. It is one of the main steps by which a whole people get an art education.

It is said of the ancient Athenians that they lived surrounded by beautiful objects and that these manifold objects, playing constantly upon their agile senses, made them a subtly and sensitively artistic people. So we Americans, during the storm-and-stress period of our life of discovery, exploration and natural conquest, have lived surrounded by ugliness and often by squalor; not so much from choice as from carelessness, or perhaps from concern for other things which loomed up in our national consciousness as vastly more important than beauty, which to not a few minds is identical with mere prettiness. This ugliness long ago attracted the rather acrid attention of Mrs. Trollope and of Mr. Martin Chuzzlewit, and its reign was so long and so unbroken that it attuned our national nature to ugliness almost as that of the Athenians was attuned to beauty. It is not easy to trace to all of its sources the newer movement in public and domestic architecture, in decoration, in parks and in landscape-gardening, but surely every such display on a grand scale of high standards in all of these, as at Chicago or at Buffalo, must have a powerful effect upon that great formless, yet educable, monster, public opinion. We are moving, as a people, toward a new and fuller recognition of the place and value of the esthetic element in life, and I, for one, feel confident that these great expositions, in which art exerts itself to the utmost, are found art education's most powerful ally. For the place of beauty in a nation's life is not to be measured, after all, by the number of great artistic geniuses that the nation produces, but rather by the character of the feeling for the beautiful and the recognition of it which are wide-spread among the people.



THE HONDURAS BUILDING.

Much the most striking and best-displayed exhibits at the Pan-American are those contributed by the government of the United States. Even to view them hurriedly is instructive and informing, but to go through them with thoughtful care is a liberal education in regard to many matters of national concern. Take, for instance, the work of the Department of Agriculture, which, with intelligent skill and every resource of modern science at its command, is pointing out to hundreds of thousands of persons how to develop more effectively the country's resources and their own, how to detect and prevent destructive disease in animal and in plant, and how to extend the area of certain profitable crops. All of these things are illustrated at Buffalo with great skill and by concrete example. The exhibits are veritable text-books of a most useful and helpful knowledge, and there is every sign that these are being much read.

Or, again, examine the display made by the War Department. Side by side with the

modern arms and ordnance, intended for purposes of destruction, are shown models of the engineering work by which are carried on the great river and harbor improvements, intended to develop commerce, industry and the arts of peace. One sees, in a few moments, what steps are taken to confine rivers to their banks and to make fixed channels for the safe carrying of commerce. This is desirable information for the individual citizen to have, and it helps the forward policy of the government for him to have it. The officials having such work in charge then find an informed and sympathetic public opinion to rest upon when they plan broad and helpful undertakings.

And so one might detail the educating influences which obviously go out from the remaining government exhibits; all are surprisingly interesting and instructive, and—which must never be forgotten—to the vast majority of visitors they are absolutely novel.

In similar fashion any striking and well-arranged exhibit educates. It corrects false ideas, fills out gaps in an imperfect knowledge and suggests a thousand and one trains of thought which do not soon exhaust themselves.

By no means last or least must be reckoned the undefined but powerful educational influence of any attempt to realize on a vast scale a high and worthy ideal. Bishop Spalding has told us in a keenly analytic essay that few men think at all and those few but seldom. The average life is a life of uninterpreted impressions, hastily acted upon. We have, unfortunately, little time to think and ordinarily little training for thinking. Thinking is apt to bore us; it seems useless, unpractical. These noble buildings, however, and all that they suggest, compel thought. Why are they here? How did the Exposition come to be called Pan-American? What thought lies behind the words Pan-American? These questions, and a score of others like them, are uppermost in the minds of many visitors as they journey homeward with the glorious impressions still fresh and strong.

To answer these questions, or to discuss them intelligently, is to develop new knowledge and new reflective power. A sharp pair of ears would have heard some development of this sort going on while the crowds were at the Exposition itself. The fact is that underneath the commercial purpose of stimulating trade between the United States and the other nations on American soil, there lies the perhaps unconscious aim of bringing into closer intellectual and ethical relations the republican communities, stable and unstable, that inhabit the Western world. In the past these communities, with very few exceptions, have known little of one another's life. The dependence of the South American republics is upon Europe, and the people of the United States have been for them fellow-Americans only in name. Madrid, Paris and London have been their capitals, not New York and Washington. It is now time for the currents of thought and social influence, as well as for those of trade, to flow more strongly north and south. For this, mutual respect and confidence are needed, and these can follow only upon mutual acquaintance. The South and the Central American must be taught that their gigantic northern neighbor is a comrade and friend, and not a potential tyrant or oppressor; and the inhabitant of the United States must learn that his nation's size and strength and wealth do not make unnecessary or unworthy the serious efforts of Latin and Teutonic communities to the south of us to build American institutions of their own. If the Pan-American can put these thoughts, and those that flow from them, into some thousands of heads, it will have greatly promoted the peace, prosperity and good will of the New World. This is surely education.

Education itself, as a great national interest, has never yet been properly displayed at an exposition. It is much crowded and limited at Buffalo. Some day an exposition will arise in which education will have a palatial building of its own, as striking a feature in the architectural plan as education itself is in the national life. It will be the most sought-out and the best-remembered spot of all, for nothing is more fully representative of the American people than their educational activity and interest. When that fortunate day comes, perhaps the modern abomination called the "Midway" will be purged of its vulgar ineptitudes or abandoned entirely.

THE SECRET ORCHARD.

By Agnes and Egerton Castle.

Book IV.

"Hatred stirreth up strife, but love covereth all sins."—*Proverbs.*

XXXVI.

IN the best guest-chamber of the only inn at St. Michel, at the sign of the Tourne-Bride, Lieut. George P. Dodd sat writing at a small deal table.

It was just an hour since, in the airy, comfortable room at Luciennes so hospitably prepared to his tastes by his kinswoman's delicate and gracious solicitude but a week ago, he had with his own hands gathered his belongings together, the while maturing his course of action. This hour he had so well employed that there now remained to him but a few business letters to write before descending to partake of that improvised dinner (ordered for three) and thereafter to turn in early. For he proposed to rise at a proportionately unusual hour; and he had his reasons for desiring to be particularly fit.

Two yellow candles on his table illumined the steady writing and threw flickering lights and shades on the sordid little room, on the blue-and-gray flock-paper of laboriously hideous design, on the flaring colored lithographs of Sobieski's last leap and Mazeppa's classic predicament, on the walnut-wood bedstead that looked so much too short, on the muslin curtain, blue-white, stiff and darned.

George Dodd signed his fourth and final letter with his bold black scrawl, read it carefully over, folded it and sealed it in the envelope, already addressed, according to his methodical business habit. Even as he was withdrawing the seal from the soft wax, there came a knock at the door. He turned round upon his chair.

"Come in," cried he, in French, and tossed the letter on the little pile.

The door was opened and Favereau entered.

The American looked, coldly, without rising. "Is not this to be considered rather irregular?" he asked. "As I informed the Duke of Cluny, my friends would be ready to receive his"—he lifted his great gold watch and consulted it—"to be quite precise, at a quarter to ten to-night. It is not yet nine o'clock. I am, as you know, sir," he went on, "a stranger in your country and I am anxious to conform to your own special rules of honor." His lips were twisted into a contemptuous smile. "You tell me that my slap on his face gives the Duke the right to demand satisfaction of me"—here the smile became a hollow laugh—"I reply: I am anxious to give the Duke his satisfaction. In my country, sir, he should have had his satisfaction within the half-hour without so much of this quadrille business. But so long as I can give your Duke his satisfaction, you know——" He struck the table a dry knock with his knuckles and laughed again.

Favereau, who had carefully closed the door behind him, stood, his head a little bent, listening with an air of profound attention. His face was yellow-white and lined with two deep furrows from the edge of his nostrils into his beard. He did not answer; and the sailor after a pause began afresh, the jeering note in his voice still more pronounced:

"You can tell that noble Duke of yours that I am quite at his disposal. My friends"—here he gave a fillip to two blue telegraph-slips that lay opened, one over the other, beside him—"my friends will bring what is necessary. One of them has lived a long time in Paris; I am certain he is up to your ways. Personally, I have insisted on only two conditions—not later than to-morrow morning, and pistols." He halted emphatically; then adding with a sort of mockery of politeness, "Mr. Favereau, I have the honor to wish you good-evening," turned once more to the writing-table.

Favereau, however, advanced a few steps into the room.

"Mr. Dodd," he said very gently, "may I request you to listen to me patiently for a few moments?"

"It seems to me," answered the other, tossing his papers about angrily as he spoke, "that everything has been said that is worth saying."

"No, sir." Favereau came quite up to the table. He leaned his long white fingers on it, and peered with his troubled, short-sighted eyes earnestly down at the inflexible young face. "Mr. Dodd, you are very justly incensed. You have been very gravely injured. But allow me to represent to you that your vengeance is directed against the wrong man. For the personal injury to yourself, for that silence which you may very well characterize as infamous, I alone am responsible."

The sailor raised his blue eyes, hard as steel, to the elder man's countenance.

"Am I to understand," said he, "that you have come to me as the bearer of the Duke of Cluny's apologies?"

Favereau threw back his head and his cheek colored as if he had received a blow.

"No," he answered briefly; and the extended fingers were suddenly clenched.

The American's eyelids narrowed. "May I ask, at least," said he, "if the Duke is aware of this 'tween-time visit of yours?"

The quick flush faded from Favereau's face as quickly as it had risen. He looked at George Dodd without a word. A deeper tint crept likewise into Dodd's cheek, and mounted to the temples, where it left an angry red.

"Well, sir," he exclaimed impatiently, "will you then kindly explain what your business is here to-night?"

"My business!" echoed Favereau; he hesitated a second, then he went on resolutely, though his voice shook: "I have but just mentioned it to you. It is to make you understand that it is I who have been the cause of your present humiliating situation; and that therefore it is myself whom you should meet to-morrow morning."

"Ha!" commented the Lieutenant. The veins on his temples had begun to swell. "And what about that slap on the cheek, sir? If I shoot you, will your Duke's honor be satisfied?" As he stopped, lingering upon the sneer, his insolently measuring eyes caught a sudden vindictive spasm upon the worn features of the Minister of France. Instantly his whole form was again shaken by mocking laughter. "Oh, oh! I see, sir, I see! The Duke has certainly got a useful friend in you. Now, look here, Mr. Favereau"—he laid his broad brown hands upon the table with all the weight of his resentment—"I'm quite of your opinion, so far: you ought to be shot, sir, quite as much as that Duke of yours. Perhaps more! But, for all that, I am not going to stand up to you and give you the chance of putting me out of the way before I have rid your country of that—that carrion. No, sir." He rose, mighty: physically enormous, morally irresistible, in his anger. "And, moreover, Mr. Favereau, when I *have* discharged that duty to society, I will not fight you." Favereau's uplifted hand fell. "You may live, sir, in your shame, because of those white hairs."

Favereau drew his breath with a deep hissing sound. For an instant, in despite of his white hairs, there leaped in him a passion so young and strong that he felt he had it in the power of his hands to strangle the life out of that insulting throat. The next moment (and then it was that all youth died in him forever: thenceforward he was an old man) his heat fell from him like a mantle and the cold hopelessness of age enveloped him.

Why should he rebel? How might he presume to be angry? It was true, his hair was white and he was shamed.

"Go!" said the American, and pointed to the door with swift and rigid arm.

With bowed head, Jaques Favereau moved away. But with his hand to the door he paused and turned round.

"Mr. Dodd," said he, and thought he spoke with humility, not knowing that never at the height of his greatest triumphs had he shown a truer dignity, "have you given one thought in all this to Helen?"

"Have I given one thought to Helen!" ejaculated the other, and the sullen storm of his rage broke into fluent words at last. "You do well to come and say this to me! Pray, sir, when that infamous friend of yours betrayed his unhappy wife, did he give one thought—to Helen? When he

received under her own roof the—girl he had seduced, and lived between wife and mistress, did he give one thought—to Helen? When you and he plotted to marry the poor little soiled creature off to me, to Helen's own cousin, to the silly, simple sailor, did you give one thought—to Helen? Sir, what have been your own motives I know not: the fellow-feeling of the old viveur, or, God knows—I don't want to—what other hidden purpose may have moved you, incomprehensible to clean-minded men like me. Whatever it may have been, ask yourself before you come whining to me: *Have you thought of Helen?*"

He wrested the door from the other's clasp and flung it open. And before his gesture Favereau passed out. On the threshold the most respected man in France turned and looked full at him against whom he seemed, by his own avowal, to have plotted infamy. It was the look of a soul too disdainful, too high, for self-exculpation in the midst of illimitable sadness.

George Dodd closed the door and came back to his table, haunted by that look.

"The old devil!" he growled savagely between his teeth. "How dare he look at me like an honest man!"

XXXVII.

Lieutenant Dodd walked up to the window, flung open the two casements and inhaled deeply.

A still night, held with the first frosts. The dome of the remote heaven wondrously star-spangled. The autumn moon, heavy, lustrous, low-sailing in matronly dignity. The world, where not inky-black, striped and tipped with silver; silver-tipped spire above the humpback little black church of St. Michel; silver-striped road and black sentinel poplars with the gleam of a leaf here and there like the hint of a spear-head; rounded shapes of wooded hills, mysteriously dark but capriciously plashed with light; black, beautiful upspring of the dead aqueduct reared against the serene sky with the sparkle of stars through its silent arches—that was what met his unseeing, angry eyes.

Well might one, looking on such a scene and feeling its deep peace steal into his soul, have cried with the canon of Marly, "Beautiful France!" But this alien, as he gazed, struck the rotting window-ledge with his strong fist and cried in his indignant heart, "Accursed land!"

From below a clink of glass and a wrangle of coarse, dull French voices rose faintly to the ear. Presently out of the sweet, distant stillness a growing rumble of carriage-wheels came into being and grew. The beat of eight iron shoes measured a rhythmic tune on the hard road. And all of a sudden:

"That's from Luciennes," thought Lieutenant Dodd.

The Marquise de Lormes came up the narrow, painted wooden stairs, her hand on Totol's shoulder and pausing to sigh at every third step.

Her elder son met her on the threshold of his room. Nothing perhaps could have been more profoundly irritating than the appearance of his relatives at this moment.

After a fashion pathetically different from her usual self-controlled majesty, the lady tottered to a chair and loosened the folds of the vast black circular dust-cloak in which she was enveloped. Over a penitential bonnet an immense veil of black gauze had been tied under her chin.

"Close the door, Anatole," she said in an unusually softened tone. And Totol, more like a small man-monkey than ever, his face wrinkled with perturbation and worldly wisdom, silently obeyed.

Dodd, unconsciously a little moved at the sight of a stateliness so broken, came over and gently touched the poor lady's hand.

"My dear mother," he said, "believe me, you can do no good here. Pray let me bring you back to the carriage without any further words, words which can only be painful to both of us."

Madame de Lormes slowly turned upon him eyes which had shed many tears since he had last come under their usually reproving glance.

"George," she answered faintly, "we must do our duty." Here the corners of her lips began to quiver and water welled up again to the empurpled eyelids. She made a gesture toward the little Marquis, and pressed against her mouth the damp

folds of her handkerchief. Anatole, on his side, cleared his throat.

"The poor maman is very much upset," said he. "So am I. So is everybody. Rotten business altogether! But see here, old man. You're well out of it, ain't you? All's well that ends well. Drop it, won't you?"

"Drop what?" said the sailor shortly.

"Why——" The Marquis closed three fingers of his right hand, extending the index and elevating the thumb, pointed the anatomical arrangement at his brother's heart, one eye screwed up, the other nicely adjusted to an aim. Then he gave one significant cluck of the tongue, dropped the mimic pistol-hand, and shook his head gravely from side to side: "It won't do, George, it won't do."

George Dodd sat down on the wooden bedstead, swung his legs and began to whistle "Washington Post" under his breath. After a minute's silence, broken only by Madame de Lormes's sighs, he looked at her and said with assumed cheerfulness:

"You'll just say when you feel rested enough to go down to the carriage, ma'am." Then he resumed his tune exactly where he had left it off.

Totol stood, reflectively frowning, his thumbs inserted into the armholes of his waistcoat. All at once he burst into fresh eloquence:

"What we've got to show here, George, is tact. Tact, my good fellow. Look at me. I have agreed to be one of Charles-Edward's seconds, old Favereau the other second. Why? To keep the affair as much as possible in the family, of course. But hang it all—why fight at all? A little tact, George, my boy!"

His mother suspended her quivering breath to hang upon her son's reply. The latter had ceased whistling, and with his eyes on the ground seemed to be lost in profound reflection. At last, looking up, he said with a slight smile:

"Well, now, really I'd rather like to know what's your idea of tact in this matter."

Totol's face creased itself into different folds, now betokening a smile.

"It isn't so easy, you see," he said. "I've had to think devilish hard, but I've got it all straight now." He sidled over to the bed and laid a bony forefinger impressively on his brother's arm.

"You've just got to pack your traps and make for America to-night." He drew back his finger and the upper part of his body and smiled more broadly. "See? You're an American: no need for you to fight duels. See? And after your—er ——" Totol here had once more recourse to mimicry, screwed up one side of his face, struck it gently with his hand, and nodded. "After that, you know, it wouldn't look well for you to remain in the same country with Cluny. On the other hand, if you are gone, don't you know, our Charles-Edward cannot fight you. How could he? So the matter ends there, as it began—en famille, no one the wiser. Things remain bad enough, but they don't grow worse. See?"

"Oh," responded the other, blandly. "Yes, I think I see." Then he slid off the bed, took Totol by the elbow and marched him carefully toward the door. "You're a mighty humorous young man," he remarked, and opened the door. "Good-night. Go to bed. You've got to get up early, you know."

"Oh, I say," cried Totol, falling dismally from the height of self-satisfaction. "Eh, maman, that means he won't!"

Madame de Lormes rose suddenly from her chair. She approached the Lieutenant, clasping her hands.

"George," she cried, "I beg of you, reflect. It is a deadly sin to try and take the life of another."

"I'll not be afraid, ma'am," answered Lieutenant Dodd, gravely, "when I stand up for judgment, if I've nothing worse on my soul than the killing of the Duc de Cluny."

A moan escaped the old lady's lips. The tears began to stream down her cheeks. "I implore you," she again cried, "for the sake of my unhappy niece, for the sake of Helen!"

The Lieutenant's face became set into marble. "It is not I, ma'am, who have made Helen an unhappy woman. The thing is already done, I take it."

"Have mercy!"

"As much mercy as I should have on a mad dog!"

"Fie, fie!" said Totol from the landing, pushing the door open and coming in again. He slipped his little thin arm round his mother's massive figure, looking the while reproachfully at his brother. "That's not nice of you, George, not nice at all! Never mind, maman," he added naïvely, "Cluny has a chance too, you know."

Madame de Lormes shook her head miserably, and a bent, doleful figure passed out of the inn room with dragging steps. But at the head of the stairs she turned and caught Dodd's hand.

"My son," she pleaded, "will you not listen to your mother?"

The American smiled with some bitterness. "You see, madame," said he, "when you speak of my mother you are speaking of a person whom the late Septimus P. Dodd's son was never allowed to know. I should be mightily flattered could I feel that all this anxiety concerned in any way the insignificant personality of the Lieut. George P. Dodd aforesaid. But I know the condescension of the noble Marquise de Lormes (whose acquaintance I have been privileged to make a week ago) could hardly reach so low."

With fluttering, palsied movements, Madame de Lormes gathered the folds of her cloak about her and pulled the black gauze over her discomposed countenance.

"Won't you take my arm?" asked George. But she motioned him from her with anger.

"Come with me, poor maman," said Totol, soothingly. And, rolling one last look of deep reprobation on his brother, he proceeded on the gallant task of conveying his mother's tottering frame downstairs.

With a cold smile the elder son followed in the rear.

At the door of the inn a cab had just deposited two new-comers. They took off their hats gravely, and displayed clean-cut, vigorous, unmistakably Anglo-Saxon features.

"I have ordered supper and your rooms," said Dodd over his shoulder, as he went by them in pursuance of his unaccepted filial duty. "I shall be with you in a moment."

"A heart of stone," groaned the Marquise as she sank back in the carriage.

XXXVIII.

The still night had faded and pulsed into the gray of dawn. Through the open curtains of Helen's private sitting-room the first luminous pallor of returning day had begun to bleach the windows. The white-tapestried room was dim in the contending shades of night and day. The two candles in the silver sconces burned dim orange in color, the hitherto steady flame in the red lamp hanging in the alcove oratory had begun to rise and fall with the failing of the oil.

The hour of dawn, to so many the hour of death, to all the hour of cold, of mystery, of vague apprehension—the Duke of Cluny felt the chill of it in his very marrow!

He rose stiffly from the hearth, where the last vital spark had died, buried under the white ash; where, seated the long night through, gazing at the dwindling fire, he had thought back the thoughts of a lifetime.

He went over to the window and noiselessly, with endless care, undid the casements and pushed them open.

White mist hung over the garden, hiding terrace slopes and park alleys. Its faint, sickly breath rose to his nostrils, struck his cheek and left its clammy touch upon it.

"It is the dawn," said the man, under his breath. "It is the dawn. How cold!"

He came forward into the room again, halted by Helen's door and with bent head listened.

A bell from some clock without struck the half-hour. Cluny looked at his watch: it was half-past five. Slowly spread the dawn, ever more bleakly white.

The door upon the passage opened under a cautious hand, and Favereau entered. Cluny looked at him in silence. How old he was growing, poor old Favereau!

The two men met in the middle of the room.

"It is time, Edward," said Favereau, in a low voice.

Answered Cluny in the same tone, "I am ready."

After a second's hesitation Favereau laid his hand on his friend's shoulder.

"Have you seen Helen?" he asked.

Cluny turned his face, with the nobility of mortal agony bravely traversed stamped upon it.

"No. I have listened at her door all night. There has been no sound from her. Blanchette is there. Helen seems to be able to bear her presence—it is no more obtrusive than that of a faithful dog—no one else's. Since she recovered consciousness she has said but four words, 'Let me be alone!'"

"It is better so," said Favereau, with a twitching lip.

And meekly Cluny repeated, "Yes, it is better so."

The two men spoke as men speak in a death-chamber, in voices subdued to the lowest pitch.

A tiny, pallid shaft of light suddenly pierced into the room. Favereau pointed to it with significant gesture.

"I know," said Cluny. "I know." He turned to his wife's door again, leaned his forehead against it and folded his hands for a moment in prayer. Not for himself—how could such as he pray for themselves?—but for her, that she might find strength to bear it all. Then he came back to Favereau.

"I am ready," he said quietly.

Favereau, turning to go with him, suddenly stopped himself and caught him by the arm.

"Ready!" he exclaimed in a fierce whisper, and ran his eye indignantly over his friend's figure. "Not with that coat, man!" He tapped with his finger the light summer gray coat and the white expanse of shirt-front. "You want to turn yourself into a target for that fellow's ball?"

Cluny withdrew himself from the other's touch and smiled upon him placidly, remotely.

"My dear Favereau, what else?"

The Minister stared a second, then cast down his eyes to hide a rush of weak, angry tears.

"And your hand," he went on huskily, "after sitting up all night?"

The Duke held out his slender hand and looked at it.

"Quite steady enough," said he, "for my purpose."

But Favereau gripped him by the elbow.

"For your purpose! That means, Edward ——" His voice broke. "I did not bargain to stand by and see murder done upon you."

"Not murder—justice."

Favereau's head fell upon his breast. Once more he moved to the door, once more he stopped.

"I have ordered," he said, "a cup of coffee for you. You will drink that." His eyes were pleading.

Cluny, who, with brow held aloft and abstracted gaze, had reached the threshold, seemed to bring himself back with an effort from his far thoughts as he turned to answer him.

"Thanks, old friend." His voice had something of its old natural note instead of the toneless whisper in which he had hitherto spoken. "To please you I would drink it, that or anything else, and pledge our friendship a last time. But"—again his eyes fixed on unearthly distance—"I want to go fasting to this new sacrament."

"This new sacrament?"

"The sacrament of death," said Cluny.

Favereau looked at him. He had loved Cluny all his life, in his beautiful adolescence and his foolish manhood, and loved him, rebuking, disapproving, without hope, without respect. And had he known him so little? This, then, was the real Cluny, the "better self" that Helen loved! He was going to death like the son of a king. Yesterday it had seemed to him, in some horrible way, as if his friend's soul were already dead and only the body left living. Now, on his way to that bodily dissolution which they both instinctively felt was awaiting him, Cluny's soul so dominated his mere humanity that it was as if already freed from its gross earthly ties, already spreading its wings for a flight.

"Do you think she would have forgiven—if I had lived?" said Cluny, without looking up.

So completely had he already expired to himself that it was quite unconsciously he spoke of himself as a thing of the past when he whispered the question.

Profoundly startled, profoundly troubled, Favereau stammered miserably, could find no words.

Cluny gave a deep sigh. "Let us go," said he.

XXXIX.

Her "missie" was asleep. Blanchette had sung Helen to slumber at last, as in those never-forgotten days of yore when her foster-babe lay upon her faithful bosom.

The mulatto rose noiselessly from her seat by the bed and, without hushing the soft, crooning song that had not been silent on her lips the whole night through, bent to look as well as she could in the dim light of the night-lamp.

Helen's breath came in regular sweeps; one long, lovely hand lay relaxed on the sheet; under the shadow of her heavy hair the peace of sleep, which is next to the peace of death, had at last settled on the wan face.

Still crooning, Blanchette drew back, crossed the room on tiptoe, opened the door noiselessly, and, leaving it a hair's-breadth ajar, crept into the sitting-room, her song a little louder now lest the sleeper should wake for the sudden want of her lullaby.

"Old missie act de foolest part,
And die for a man dat broke her heart.
Look away, look away, away."

Thus went the wailing tune, in the pathetic negro voice, breaking off, now into a sort of trail of subdued sound, now into a long yawn, as the dusky creature moved about the room in her dumb list-shoes. She lit the spirit-lamp on Helen's untouched tea-tray of the night before, intent on making a refreshing cup for her mistress against a possible early waking.

"Look away, look away, away,"

sang Blanchette, and stretched herself and yawned.

Misty sunshine was now flooding in horizontal sheets through the open window. She caught sight of the two candles still flaring in their sockets and arrested her song to blow them out.

At the same instant the far-off crack of two shots, almost simultaneous, rang from some glade in the park below. Blanchette listened for a moment indifferently, then took up her monotonous chant once more:

"Then I wish I was in Dixie . . .
Hurray, hurray!"

The passage door creaked and opened. Madame Rodriguez, wrapped in a dressing-gown, her little face drawn and ashen-colored, crept shivering into the room.

"My!" she cried, breaking into a run. "I am glad to see a human face, if it is only a colored one! Blanchette, I'm scared; I never was so scared in all my life!"

Blanchette had stared at the new-comer open-mouthed. But when the voice was raised, she disengaged her hand to clap it unceremoniously over the speaker's lips.

"Hush, hush, hush, you wake missie! She only just gone off in lobliest sound sleep!"

Nessie started. With a nod she advanced on tiptoe to Helen's door, listened for a moment, then, again nodding at Blanchette, she closed it with such infinite care that not even a click was heard; then she ran back.

"Did you hear those shots?" she whispered.

Blanchette was peering into the kettle. "Reckon that keeper fellow popping round. Hope he not go for to wake my missie."

Nessie seized her with cold fingers. "Where is the Duke?"

Blanchette lowered the kettle-lid to stare with round eyes.

"Lor' a mussy! I dunno, Ma'am Rodriguez." Her dark face became filled with the pitiful, uncomprehending trouble of a child. "Sho' dis has been de stranges' night!"

Restlessly Madame Rodriguez went to the window and leaned out; restlessly she came back, sat down by the table, her hands catching at the loose masses of her hair.

"Oh, those shots, those shots!" She sprang to her feet, her face suddenly livid. "Blanchette, something has happened! My God, and Helen is asleep!"

The woman turned upon her fiercely. "Don't wake my missie!"

"No, no," cried Nessie, in a sort of sobbing whisper. "God help her, let her sleep! Hush! Don't you hear?" Once more she gripped Blanchette by the wrist. "Don't you hear? They're coming back!"

The healthy copper color of the mulatto's cheek turned suddenly gray. Infected by the other's fears, she stood frozen, striving to catch the approaching sound of the unknown calamity. There was indeed a murmur of voices on the

terrace path and a curious, steady, muffled tramp of feet. Then silence.

Still clutching each other, the women listened. Now there came a step upon the stairs. Now it was coming down the passage. The door was opened, Favereau entered.

One look at his face was enough for Nessie: she staggered forward with a husky cry.

"Oh, Monsieur Favereau, the Duke!"

Favereau lifted his hand and let it fall without a word. Nessie covered her face. But Favereau had come up to her and was now speaking rapidly, earnestly:

"He has asked to be brought here. Here, do you understand me? Lebel is doing what he can, but it is only a question of minutes. . . . Madame Rodriguez, are you listening? Some one must prepare Helen."

Here Blanchette thrust her large, gray, bewildered face between them, with but one thing clear in her childlike brain:

"Missie asleep!"

"There is no time to lose," insisted Favereau. "The minutes . . . "— a spasm contracted his face, his voice broke, but he went on—"the minutes are counted. Madame Rodriguez, you are her friend—will you tell Helen?"

She beat him off with frantic little hands. "I? Oh, I couldn't do it! Monsieur Favereau, I couldn't do it. Don't ask me!"

Favereau looked at her, cowering and fluttering, with angry, despairing eyes.

"Her aunt, then. Where is she?" he urged.

At that moment Madame de Lormes in person answered the question. Still in the clothes of the previous evening, she entered, stately, erect, her large features set like a mask of yellow wax.

"Madame," said Favereau, turning upon her, "you have heard?"

The old lady trembled, yet stood with uplifted head.

"My son?"

"No." Again the bitter spasm distorted Monsieur Favereau's face. "The Duke . . . he shot in the air. Your son's bullet was aimed but too well."

Madame de Lormes seemed to break to pieces. She fell into a chair, covering her countenance with the folds of her lace veil. Nessie flew to her, sobbing.

"No, it's the Duke, the poor dear beautiful Duke, and Helen's asleep, right in there, and she's got to be told, and you've got to do it!" She shook Madame de Lormes vehemently by the elbow. "You've got to do it; you've got to tell her, I tell you. There's not a moment to lose."

Favereau bent down on the other side. "Madame Rodriguez is right," he urged; "there is not a moment to lose if Helen is to say good-by to her husband."

The Marquise gathered herself together, and suddenly rising, faced them in majesty and anger.

"And you expect me to be the one to tell my unhappy niece that my son has killed her husband?"

A long cry broke from Blanchette. She clapped her hands together.

"Massa killed! Massa we loved so—our good, lovely massa!"

All rushed to silence her, too late! Helen's voice from the inner room was heard calling:

"Blanchette!"

Had those gentle accents been the trump of doom, they could not have struck greater consternation. Nessie burst into uncontrolled sobs and fled. Madame de Lormes, again veiling her face with the dignified gesture of a Roman matron, passed out in her wake.

Favereau stood a second in a mortal hesitancy. Then, crying to the old nurse, "Keep her quiet a moment, I'll send the doctor—better still, the canon; he must be here by this," he too took his coward's flight.

"O Christ in heaven!" exclaimed the poor mulatto, again striking her palms together. "What shall I say to missie?"

Once more came the voice from within in louder cadence:

"Blanchette!"

XL.

The folds of her white morning wrapper falling in long statuesque lines about her, Helen advanced wearily into the room.

"Is it only you, Blanchette?" she asked. "I thought I heard voices." She let herself fall into a chair as she spoke and

leaned her brow on both hands. Then without looking up she added, "Tell your master that I want to see him."

A deep sigh escaped her lips. Within her her heart was crying out, "The whole night has passed, the sun has already risen, and he does not yet know that I have forgiven!"

Her temples throbbed. Shattered by the mental shock, there was but one idea dominant amid the whirling sadness of her thoughts: that Cluny must be in sore trouble, that he needed her.

All at once she became aware that her order was not being obeyed.

"Blanchette," she repeated, "did you not hear? Go and fetch your master."

The woman uttered a loud, sobbing wail, and coming behind her mistress caught her head in her arms.

"Oh, missie! Honey missie, lie on poor old black mammy's bosom as you used to! Oh, Lordy, Lordy, dat it should be me to break her heart!"

All her vigor of mind and body came back to Helen at this hint of new calamity. She sprang to her feet.

"What! What! Your master? Blanchette, what is it? Speak, I order you!"

"Massa's some hurt, missie," sobbed the nurse. "Massa and Massa Dodd they go shooting, I 'spect . . . and oh, Lordy, woe de day!"

She fell upon her knees and hid her poor convulsed countenance in the folds of the Duchess' robes. Helen stood still a second, rigid; then she gave a rending cry:

"Ah, and I was asleep! Where is he?" Fiercely she fought against the clinging, loving hands that caught round her knees. She had broken from their hold and was rushing forward, when she saw Doctor Lebel before her.

He was standing, looking at her, his spectacles pushed up high on his frowning forehead; with finger and thumb he was wringing his nether lip.

"Doctor—Cluny?" The question died away on her lips as her eyes fell upon his face. "Oh, is it as bad as that—is it as bad as that!"

She reeled and he caught her.

"For God's sake," he cried, "don't give way now; he wants you."

"He wants me." She steadied herself. "No, I shall not give way now. Don't be afraid. I am strong."

The doctor peered at her keenly. "That's right, that's a brave woman! They are bringing him here. Keep up; it won't be for long."

He hurried out of the room and left her standing. With eyes fixed straight before her upon a vision of immeasurable sorrow, slowly she repeated:

"It won't be for long."

They were carrying him in. The major-domo, with the difficult tears of age streaming down his face, was at the head; Jean, sobbing out loud, at the feet. They had laid him on a stretcher roughly made out of a hurdle covered with cloaks; under his head they had placed a cushion of purple silk, and over the long, still limbs they had lightly thrown a purple plush rug. His eyes were closed; his face, with the stamp of death upon it, was serene. They gently set him down at Helen's feet.

The doctor stood gazing at him for a second; then he motioned the servants away, looked at Helen again searchingly, then drew back into the window recess.

Blanchette had crouched into a corner and was rocking herself, moaning under her breath, her doglike gaze fixed upon her mistress. The misty day had brightened into glory, and sunshine was now streaming in upon them.

Cluny opened his eyes. "Helen."

Helen slowly fell on her knees by his side. "My beloved!"

"I can't lift my hand, Helen. Will you take it—the hand with the wedding-ring?" His voice was very faint, but he spoke naturally, simply. She took his hand between both hers. With difficulty he moved his head a little nearer to her.

"Are you holding my hand, Helen?"

"Yes, Cluny."

"My wife!" These words he said very clearly, almost loudly, and then there was a pause. "Where am I to begin?" he went on, a look of trouble gathering upon his face. "I don't know and the end is so soon!"

Her love brooded over him like the mother-bird's over its young. As if speaking to a little child:

"I know everything you want to say," she whispered; "say nothing."

His voice grew fainter, his eye dim. "And I, who would have given my life to save you a tear—I have no words. Forgive."

Helen cried back to him, "I love you!"

He went on, ever more faintly: "It is right as it is—death expiates. What do you say? I cannot hear."

Closer she bent to him, laid her cheek on the pillow beside him.

"I love you!"

"There must be mercy with the God who made you."

He spoke wanderingly, his eyes dimly seeking some distant vision.

The Duchess rose to her feet. "He is faint," she exclaimed with a sharp cry. "Doctor, give him something, quick!"

Lebel hurried over, stooped down, raised himself again and shook his head.

"Give him something!" repeated Helen, fiercely.

The doctor patted her shoulder. "Keep up, child, keep up—a very little while longer."

"It is the end!" said Cluny. His voice rose with sudden strength. "Let me be brought into your room. And let us be alone. Let me be alone—alone with you and God. Helen, you have always done everything for me: offer up my soul, I am going."

The doctor ran out to call in the waiting servants. Helen herself opened the great folding doors between the two rooms. She came back and again took up her husband's inert hand, just as, under Lebel's directions, the servants were lifting the stretcher. With a supreme effort Cluny turned his head to look at her with eyes growing rapidly blind.

"Your room," he whispered. "Ah, Helen, it is all over."

"Don't touch him!" ordered Lebel. "Lay the stretcher on the bed. There, that is right."

The servants filed out; the doctor followed them, closing the doors with care behind him. His hand was still on the lock when in rushed the canon, his white hair disordered, in full vestments. Lebel hurried up to him.

Breathlessly the priest spoke: "I was in the middle of my mass! I came as soon as I could leave the altar." He looked round him in agony. "Am I too late?"

"No," said the doctor, his face working. "No; but only just in time. Hurry, man, hurry! I've done all I could. I can do nothing more. It is—it is your turn now."

The single note of the chapel bell of Luciennes floated in through the window.

"Where is he?" cried the canon, bewildered.

The doctor seized him by the elbow. "In her room. Hurry!" He opened the door, pushed his old friend in and closed it again behind him. Again the bell note was heard: first the single warning stroke, then the beat of the plaintive vibration dying reluctantly into silence.

The doctor started. "These cursed medieval customs—as if life were not sad enough already!" he wailed within himself.

Up went finger and thumb to his lip. He stood by the door, bitterly waiting.

LXI.

Led by Madame de Lormes, the household of Luciennes, with the murmur, as it might be, of many waters, came trooping into the room which was the antechamber of death—some as yet scarce dressed, with bewildered, sleepy stare; the English coachman with impassive face; a couple of gamekeepers with gipsy skins and wild, woodland eyes; kitchen-maids from whose round cheeks not even the rumor of death had been able to scare the colors. At the end of the long stream, a thin, shrinking figure with faltering steps and white face marked with suffering—all that a man's passion had left of her who had once been well suited with the name of Rose! Beside her, his short-sighted gaze fixed like that of one walking in his sleep, came Favereau. And finally, with a patter of little frightened feet, a flutter of garments and flying sobs, Nessie Rodriguez again. She vehemently pushed her way between them all, crying:

"Oh, will no one stop that dreadful bell!"

"Hush!" said Madame de Lormes, rebuking. "Silence!" ordered she, turning to the whispering servants. "It is the passing-bell: on your knees, all of you, and pray for the soul that is going."

She swept up to the table and knelt down first, facing the room. The servants, falling into a circle, followed her example. Favereau, with a sudden failure of his self-control, fell upon his knees too against a chair, and wrung his clasped hands above his head. The doctor still stood at Helen's door.

Three times the note of the passing-bell dropped into the deep silence, faded away tremulously. The doctor's hands crept to his ears as if to stifle the sound, then slowly, like one impelled by an unseen force, he too sank on his knees, folded his rugged fingers and bent his head.

Over the murmur of praying lips a voice weeping and wailing in the distance penetrated into the room.

The old housekeeper exchanged a terrified look with the majordomo, rose painfully from her knees and stepped out with ponderous precaution. There was a shrill scream on the threshold, and then, her baby curls wild, a dark cloak flung over the white nightgown, her feet bare, Joy broke in upon them, striking right and left at those that tried vainly to arrest her.

"Where is he?" she shrieked. "I will go to him. If he is dying, as you say, then I must go to him!"

All rose from their knees. There was an instinctive rush to place a living barrier before the door of the death-room.

"Girl," said Madame de Lormes, advancing with fierce menace upon her—"girl, have you no decency?"

At the same instant Nessie Rodriguez caught the struggling figure by the arm.

"Come away, for the Lord's sake, you—you who brought all this about! Go and hide your face and weep alone."

But Joy wrenched herself free with furious gesture.

"Let me go, I say! What do I care for any of you? You fools, you let him go to his death without lifting a finger; him, that man who was a prince among you, whose hand none of you was worthy to touch—you let him go and be murdered!" Her voice rose into a scream. "What do I care for any of you? Let me go!"

The folding doors were pushed apart and Helen appeared, supporting herself with a hand on each.

She stood, looking straight before her; the smallest sound was hushed among them all. Her white lips parted:

"Stop the bell."

First it ran in awe-struck whisper from mouth to mouth, "The master's dead, the master's dead, the Duke is dead." Then it broke forth in momentary clamor. Joy fell on the floor in a heap as if struck down.

"Dead, dead!"

They began to huddle together and slink away, these honest serving-folk who, distantly or closely, had loved their master, and knew not how to bear themselves where death, that most ordinary of visitors, had come in such extraordinary fashion. One of the gamekeepers, turning at the door, bent his knee and made the sign of the cross as if in church.

Lebel, with a scarlet face of trouble, cast one look at Helen's motionless figure, then he whispered hastily to Madame de Lormes:

"Get that girl away before the Duchess sees her."

Madame de Lormes approached the crouching figure and, bending over it, in a hissing undertone hurled her ban:

"Out of this room! Out of this house! You have made a widow of your benefactress, a murderer of my son! Have you not done enough? Back to where you came from, back to the streets—accursed that you are!"

From the huddled heap on the floor two savage dark eyes looked up for a second; then on hands and knees Joy crept a step away, a step nearer the inner chamber. Now Nessie darted at her.

"If Helen sees her it will just kill her! Come with me," she cried, gripping the thin shoulder; "I'll take you——"

"Where would you take me?" asked Joy, in a toneless voice.

"Where? I don't know. To some house—some house of penance where they receive such as you."

As she spoke, Nessie strove to drag the girl from the floor, and Joy gave a sharp cry, like a hurt child. At the sound Helen started and seemed to wake. She looked round upon the room, at the group, at Joy, and the marble stillness of her face became troubled as with a yet hardly realized horror.

"Out! out!" again whispered Nessie in Joy's ear.

"Let her be carried away," said Madame de Lormes, loudly. "Call back the men!"

"Stop!" cried the Duchess, in a loud, clear voice. She threw back the doors and the bedroom lay disclosed, its curtained blackness illumined by the lighted candles at the head of the bed upon which lay the motionless figure under the purple folds, with just one ivory hand catching the light. The canon's white head shone with a silver aureole as he knelt by the side, his elbows on the hurdle, holding the crucifix aloft in his clasped hands; his voice rose and fell in low, ardent supplication.

Helen advanced and looked a second with majestic reproach upon them all. Then she spoke.

"Is there not one Christian among you?"

They fell back before her in awe-struck silence. She turned her eyes upon the prostrate girl:

"Child!"

It was a cry from the depths of her betrayed heart.

Joy crept nearer on her hands and knees, caught up the fold of Helen's garments, laid her head upon her feet, and at last broke into sobs and tears.

Thereupon Favereau, white ghost of himself, came forward from his hidden corner.

"Go, go!" cried he, driving the spectators before him. "Go all of you. Let us leave them alone!"

He himself, the last to retire, stood a second at the door and cast a long look at Helen's beautiful, motionless figure, at the crouching heap at her feet. Then he softly closed the passage door.

Helen and Joy were alone in the room. And beyond lay the dead Cluny. Suddenly, from between her sobs, as she clasped and kissed her benefactress' feet, the girl began to moan faintly:

"I loved him too; ah, I loved him too!" Helen's face contracted; a great spasm of horror, of revolt, came over it. The canon's voice rose from within in that prayer of the agonized believer which, in its fervid insistence, seems almost to command the Almighty.

"Remember not his sins, O Lord, for he has hoped in you. Succor his soul, O saints of God, meet him, angels of God, receive him. May he rest in peace, may he rest in peace!"

Helen echoed the words aloud: "Peace, peace!" Then, with a cry: "Remember not his sins! . . . It was his sin."

She folded her hands over her broken heart. "His sin, O merciful God!" she was saying within. "Grant me strength to atone for him to Thee!" She looked down at Joy. "To atone to her, for him."

Stooping, she raised her, held her.

"Poor child!"

And her tears began to stream.

THAT DAY MONTH.

XLII.

The doctor came down the steps of the house to the terrace and walked slowly up to the canon, who was waiting for him by their favorite corner of the balustrade.

On this cold November afternoon, faded was the glorious panorama they had gazed upon together a month ago, faded and desolate. Brown or gray now lay fields and woods under a lowering sky, with dull rack sailing low before a driving wind. Shrouded was the valley in obscuring mist, over which the arches of the distant aqueduct seemed to hang in mid-air like some fantastic cloud-vision.

"Well?" said the priest, hurriedly, as soon as his friend had joined him.

"Well," answered the doctor, driving his hands deep into his pockets with his familiar gesture. "Oh, she is all right! At least, as right as she'll ever be in this world." He looked gloomily across the sallow land and ended with a noisy sigh.

"She was looking very pale, very pale, this morning in the chapel," said the canon, seemingly ill satisfied. "Had she a headache?"

"I don't think so. She cries so much"—the doctor's mouth twitched a little—"it is hard to tell by her face."

"Her pulse?"

"Quite normal."

"Some little tonic?"

The doctor exploded with that rage of

the sore heart that no one ever resents.

"Saperlipopette! Go and prescribe for her yourself! Indeed, my good Canon, it's really within your province. Is not this the sort of case when religion is supposed to come in? Where are all these famous consolations?" He broke off as if ashamed of his vehemence. "There, there," he exclaimed, forestalling the sad rebuke he saw in the priest's eyes, "I'll not say but she has found help. Ah, poor child, true or false, it is all she has! Who would try to rob her of it? Not I . . . not I!"

The canon laid his hand on the doctor's threadbare sleeve. The wind was blowing very chill about them, fluttering the priest's long white hair, making the doctor's loose coat flap. Yellow leaves, torn from their withered stems, drifted past them. With one accord they fell to pacing between the empty flower-beds.

"When she spoke to me on the chapel steps this morning," said the priest, "I confess that her appearance alarmed me. She scarcely looked as if she belonged to this earth. That was why I begged you to find a pretext for looking in upon her."

"No cause for anxiety," said the doctor, impatiently, "so long as you don't make her too good for this earth—for she is wanted down here badly," he added with a sigh.

The canon hesitated, then he said in a low voice, "She told me that I might write to Monsieur Favereau to come and see her."

The doctor started. "Glad to hear it," he cried emphatically. "Ah, poor fellow, how he has suffered!"

"She never had anger in her heart," pursued the canon; "not even against the man"—his voice changed to a quite unconscious note of deep resentment—"against the man who was the cause of her husband's death."

He paused. The doctor gnashed his teeth. Human nature dies hard, even in the saint: there was enough of the old "man" left in the canon of Marly to make him feel that although he could not, of course, approve of the doctor's muttered curse, neither could he find it in his heart to rebuke him for it. After a few moments he pursued, as if he had heard nothing:

"From the very first day, she made the sacrifice of forgiveness—forgiveness toward all. As regards Monsieur Favereau, her old friend, whom she had relied on for help her whole life long, and who had failed her at the test, she never spoke one bitter word except that first cry, 'He knew!' Ah me! but that was the most terrible indictment! Le'el, Lebel, fancy what it would have meant to her if *he* at least had had the courage to do right. He made me tell him what she had said. Shall I ever forget his face as he turned away and walked down that road—left this place, he thought, never to return?"

"She could not bear to see him," commented the doctor. "It is only natural."

"It was perhaps the last little touch of earthly weakness left in her," said the canon. "She has now surmounted it. Every day I see the trouble which is of this world fade from her sorrow, and the serenity grow which is of the world to come. She was faithful to her God in her happiness: in her trial He has not abandoned her."

The doctor wagged his head with a look of ineradicable doubt struggling with grudged admission. They took a few paces in silence, then he exclaimed bitterly:

"Yes, yes. That's the sort of thing that sounds so fine from the pulpit, Canon. But allow me to say that the way in which the Duchess has been treated by what you are pleased to call Providence is hardly encouraging for others to place their funds in that bank."

It might have been remarked by any who had known the quarrelsome friends a month ago that a change had come over their relations. The scathing rebuke that at this irreverence would have flashed in the canon's eye and issued from his lips was now absent. The only emotion visible on his countenance was one of the most affectionate distress. As for the doctor himself, no sooner were the words out of his mouth than he put out his hand in apology and added with quite unwonted gentleness:

"Forgive me, Canon. One must have one's growl in this brute of a world, you know. Upon my word, I'm not sure that you people who manage to keep up a faith

in a better one have not the pull over us in the long run. But there's my unfortunate logic always cropping up, you see."

"Ah, my dear friend," said the canon, "use your logic then in this instance, before you cast up to a merciful God the misfortunes of this house. Go back once again to their primary cause. Our poor Duke——" His voice quivered, and the doctor with a hasty gesture of the hand begged for silence. Neither of them, from their vastly different standpoints, could yet bear to cast a word of blame on the memory of the beloved sinner.

"I must speak, though," pursued the priest, after a pause. "Had the Duke remained in the path God had marked out for him as for the rest of the world, what a happy home should ours still be to-day, instead of——" Again he stopped, then went on in low, resigned accents: "Henceforth must it not be for all of us so long as we live a house of mourning? Even then, the first grievous act once committed, had Monsieur Favereau not tried to mend wrong by further wrong, had you not all, you yourself included, at the actual moment of catastrophe, condoned, nay, helped to, that fatal duel, that grievous infraction of the written word of God, she might now be weeping, it is true, but not the widow's tears. Ah, no, my friend," cried the priest, with a sorrowful warmth, "it is not Providence that has worked to this sorrow, it is Sin."

"What the devil!" exclaimed the doctor, indignantly, scrubbing his beard. "Throw the blame on me, now do! It's all my fault, of course. I should just like you to tell me what I should have done?"

"The right," again asserted the other, unhesitatingly.

They had reached the head of the steps which led down to the garden.

"Well, I am going home," said Lebel, grumpily.

Mildly answered his friend, "Our ways lie together."

Lebel shrugged his shoulders; the priest's last words were rankling in his mind. He ran down the steps. But halfway through "the Canon's Walk," at the stone bench where they had met on the morning of that memorable day and had planned to divert the course of Fate, he halted and waited for his friend.

As the latter came up, not a little out of breath, the doctor greeted him with a fresh outburst.

"You remember what I said to you a few weeks ago, here in this very place? Hold me responsible, indeed! Who aided the Duchess in that folly of adoption, I should like to know. Thousand thunders! One does what one can! Do you think I liked to go and see him shot? Had that cursed ball sped differently, my presence might have saved his life perhaps. I should have gone for the police, I suppose? Pretty business! As if that would have stopped anything, either. At least we kept the scandal from spreading. And then you talk of sin, sin, sin! What of your holy, well-thinking Marquise? She is righteous enough, that one! She knew, as well as I did; could have helped as much as I could."

His voice died away in a muttered grumble. The canon lifted his head with the ghost of a bygone haughtiness.

"The poor Marquise!" said he. "Alas, she failed on the side of her predominant passion! It was a question of tradition, you see."

Doctor Lebel flung a shrewd, mocking look at the priest's aristocratic face.

"You think, no doubt," he jeered, "that I, as the son of peasant folk and blacksmiths, have no excuse; but that for the transgressions of the others—people of quality—there are special accommodations with heaven, eh, Monsieur de Hauteroche?"

"I?" cried the priest, startled. He flushed to the roots of his hair, then sank upon the bench and covered his face with his hands.

"God knows," said he, "God knows the clay of which He has fashioned us! Alas, my friend, there is but one thing clear, one thing we must learn in all this, that He alone can make good out of evil —man cannot."

The doctor plumped down on the stone, propped his chin on his hands and shook his head from side to side in deep despondency.

"Oh, I'll not say," he cried at last, "there's not something in your theory. But that good woman, that gentle creature, what harm did she do? How has your just God rewarded her?"

"Hoid, sir," said the priest, "and I will tell you. She has been rewarded as she herself would have chosen to be rewarded—by the only reward meet for her and one which transcends all earthly blessings—the salvation of her husband's soul. I was present at that death. It was a moment of immeasurable sorrow, yet of unspeakable consolation. I may say that her husband's repentant spirit passed through her hands to his God. No despair can ever touch Helen now. Therefore does she weep like those who have hope. Not only that," continued the canon, "but that other soul, that soul that was living in death, through him, through his fault, she has called it to life again."

The doctor jerked up his head and stared at his friend: his little eyes were very fierce, as if in defiance of the tear that was rising to them.

"Do you really think," he asked, "that such a business will work? That they can go on living together up there? That that little devil's spawn won't break her rescuer's heart again when the hour comes? It's clean against nature all round, Canon!"

"It's a miracle of God's grace," said the canon, with a confident smile. "Anything less marvelous, less superhuman, would have been beneath that perfect soul."

There was a long silence, filled by deep thought, to the accompaniment of the autumn wind's sad song. At last the doctor shook off the reverie.

"And the girl?" he asked.

"The girl!" resumed the other, earnestly. "Oh, I have great hopes! That extraordinary power of passion in her which was, alas! spent in such an unregulated torrent, seems to have been diverted into another course—one that cannot but be productive of good, of healing, of rehabilitation. The Duchess is now the object of the poor wayward child's jealous devotion. I build greatly on that—greatly. Helen will eventually transfer this love, as she transferred her husband's, to God."

The doctor looked skeptical, opened his mouth to contradict, marked the canon's face, which these last few weeks had so altered, so aged, transfigured now as with an inner light, and refrained. Why cast a doubt upon this faith? What had he, after all, so much better to offer instead?

He put out his hand and affectionately tapped his old friend's knee.

"Well," said he, "who knows?"

(THE END.)

GREAT INVENTIONS SINCE THE WORLD'S FAIR.

By John Brisben Walker.

NINE great inventions have come to the front since the Chicago Exposition, viz. :—

I. The submarine boat.
II. Wireless telegraphy.
III. Telephoning under the sea.
IV. The X-ray.
V. The high-pressure, twenty-mile gun.
VI. The small-bore rifle.
VII. The baby incubator.
VIII. The automobile.
IX. Acetylene gas.

Of these, in the order of military importance, may be named first the submarine boat. It is true that the submarine vessel had its inception long before 1893, a man-of-war having been sunk in Charleston harbor during the Civil War by a Confederate submarine boat, but the defects up to 1893 were almost so radical as to preclude its general use. It is the work that has been done since that time that has brought this marvelous invention to an efficiency that may be regarded as complete, even if no further progress were to be made.

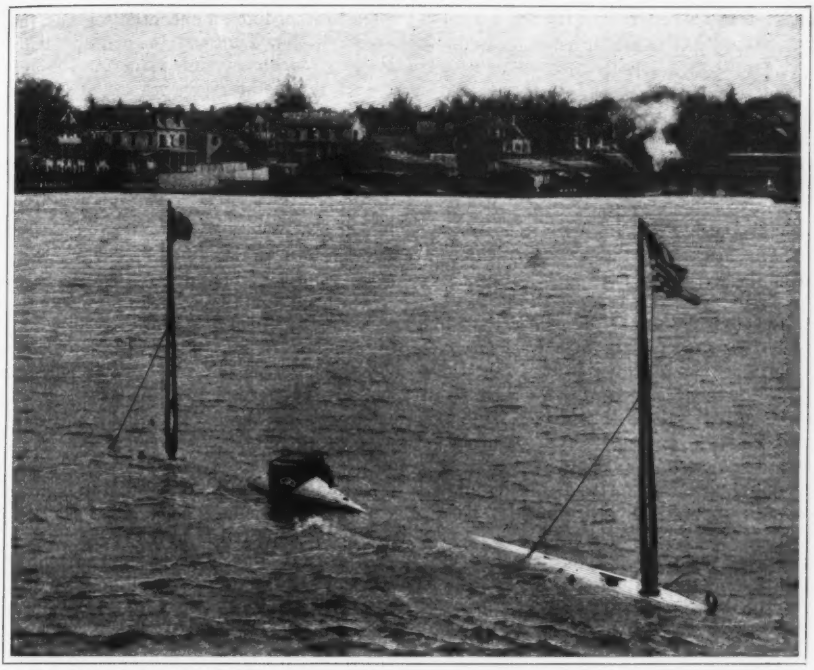
But while the general idea is correct and the powers of the submarine boat of to-day are fully developed if we consider but the question of their power to destroy the greatest of existing sea armaments, it is the history of all invention that every hour of experiment and practice will bring perfected design and increased excellence.

The student at the Pan-American who views these great expositions as stepping-stones of the world's progress, will speculate with special interest upon these designs for submarine offensive ships.

Two years ago The Cosmopolitan published an imaginary sketch of the French government, helpless to compete with England in battle-ships, undertaking the construction of a powerful fleet of submarine boats. In a war unexpectedly declared by the French, their battle-ships were put forward to attack the English Channel Squadron, while in fact they were intended simply to cover the advance of a submarine flotilla numbering several hundred boats upon which the French placed their reliance. Before the two fleets of battle-ships could come to close quarters, the hidden submarine fleet had silently passed beyond the covering vessels, and after rising for a second to the surface, proceeded to the work of attack. But a few moments was then required to torpedo and sink the entire English Channel Squadron.

At that time the condition of submarine architecture did not justify the prediction of a boat having the capacity for extended sea-travel; but the new type of vessel was even then so well demonstrated as to leave no room for doubt in the unprejudiced mind regarding the feasibility of constructing these boats in effective numbers and at figures insignificant compared with the cost of battle-ships. Even at that time it was believed that the invention of the submarine boat had rendered the most costly battle-ship as vulnerable as the old-fashioned wooden man-of-war wherever the concealed vessel could come within reaching distance.

The policy of investing hundreds of millions in battle-ships incapable of great speed, vulnerable at so many points, has been an incomprehensible one to the lay mind taking cognizance of the problems involved. It was understandable only from the belief that the wealthiest and most powerful manufacturing interests of the country were forcing the hand of the Navy Department. It also seemed natural that many officers of the navy stood committed by tradition to the large ship, and were unable to contemplate without violent prejudice the substitution of the dark, cramped, in every way inconvenient and at every moment dangerous surroundings of the submarine boat for their handsome and commodious present quarters. Taking the psychological aspect of this matter more comprehensively in view—the long months of unavailing effort during the Spanish war to secure a proper investigation of the merits of the Holland boat—how at a critical period when



By courtesy of the Scientific American.

THE "HOLLAND" AT HIGH SPEED WITH CONNING-TOWER ABOVE SURFACE FOR OBSERVATION.

even one such boat might have rendered almost as great service as the "Monitor" at the beginning of the Civil War, boards of officers appointed to report on the "Holland" seemed to put every obstacle in the way of a favorable consideration and during a period of nearly a year refused to make a single personal test under water—how finally the test was made after the most violent and continued criticism on the part of the members; and how, even up to the present day, no hearty or generous acknowledgment of the scientific merits of this submarine invention has ever been made on the part of any naval board.

Meantime France, in which no great armor, shipbuilding or gun-factory interests exercise influence over the government, has considered the question on its merits and has brought its best scientific minds to bear on submarine construction. The results are as might easily have been guessed. In fact, the practical demonstration goes far beyond the prophecies of even the most sanguine. They are best told by quoting the following cablegram to the New York "World" of July 20th:—

"BATTLE-SHIPS TO GO; SUBMARINES RULE.

"REMARKABLE FEAT OF THE 'GUSTAVE ZEDE' UPSETS CALCULATIONS FOR THE FRENCH NAVY. SAILS FROM TOULON, ELUDES FLEET AT AJACCIO, TORPEDOES BATTLE-SHIP AND ESCAPES WITHOUT BEING SEEN.

"PARIS, July 20.—After seeing the submarine boat 'Gustave Zede' sail one hundred and seventy-five miles from Toulon to the harbor of Ajaccio, Corsica, elude the vigilance of the French fleet, torpedo the great battle-ship 'Charles Martel' and cross the Mediterranean to Marseilles (two hundred and twenty-five miles), all this time unobserved, the French Minister of Marine, M. de Lannesan, has decided to delay the building of several monster war-ships already voted by the National Congress.

"All the naval experts here are profoundly impressed by the recent progress in submarine vessels and navigating. They declare that the huge ships are doomed.

"M. de Lannesan intends to present to the Senate and Chamber as soon as the Con-

gress meets a bill to modify the naval expenditures, providing for constructing, in place of large war-ships contemplated, forty submarine craft of the 'Gustave Zede' type (one hundred and fifty-nine feet long), but larger, and eighty purely defensive submarine boats of the Goubet type (No. 1 is sixteen and one-half feet long, No. 2 is twenty-six and one-quarter feet), which cannot operate beyond fifteen miles but are so transportable that eight can be loaded aboard an ordinary cruiser."

But a more inconceivable folly than that of building battle-ships in the face of such results as that attained by the "Gustave Zede" has never been recorded in history.

Officers trained in the use of certain arms and means of defense have for centuries been slow to acknowledge the superiority of more scientific methods. Men fought with bows and swords long after the invention of gunpowder. But in those days there was no public press to make known the advantages of new inventions, and no board of scientifically trained officers to whom were assigned the duties of impartial study.

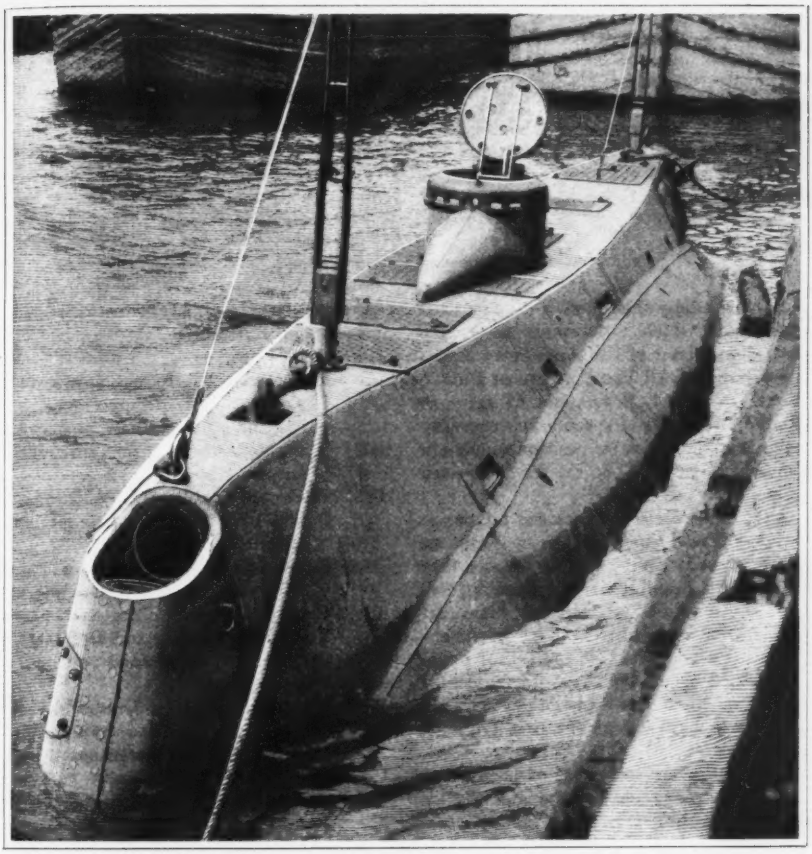
The navy of to-day owes it to its training at Annapolis to wake up and protest against the direction of its schools of construction by interests that to the general public seem very largely mercantile and selfish. The naval board declining to recognize the merits of the "Gustave Zede" will be the laughing-stock of future generations, going down into history as either inconceivably stupid or instigated by motives of politics.

This is the point to be kept clearly in mind: that the five million dollars expended in a single battle-ship would mean one hundred submarine boats—a flotilla powerful enough to destroy our entire navy as it to-day exists.

As one rides over the smooth asphalted streets of Buffalo to the Exposition in a rapidly moving automobile, it seems inconceivable that in all the vast collection of the world's resources gathered at Chicago in 1893, there was not even a single horseless carriage, as the term is understood to-day. Not only that, but the subject of automobiles had not then come to be seriously discussed. Eight years have passed, and, lo, the horse-drawn vehicle has already come to seem like an anachronism, and the streets of New York and London and Paris are filled with a new form of vehicle. French automobiles have made a run across France and Germany at a rate that rivals the fastest railway-trains. Express-matter is moved in self-propelling wagons at a rate that is only one-third or one-quarter the cost of moving by horses, and small, serviceable wagonettes, carrying but ten passengers, claim that they can not only move their living freight without delay or stop directly to the destination, but at a cost lower even, owing to the absence of vast outlay for plant, rails, et cetera, than that of the electric streetcars. The exhibits of automobiles, extensive as they are, give but an imperfect conception of the strides which this new industry is making.

The phenomena of wireless telegraphy, telephoning under the sea and the X-ray are all in the line of what might have been reasonably expected from the progress made in electrical development up to 1893. The high-pressure twenty-mile gun, which puts the greatest cities under tribute from vessels that are practically below the horizon, is also in the line of that evolution of the gun which Jules Verne predicted more than a quarter of a century ago. The small-bore rifle, firing its shot with high initial velocity, is in the nature of an unexpected development. For many years the evolution of the army rifle seemed to be in the direction of large bore and heavy metal. The efficiency of the small caliber had been suspected by a few military, scientific minds prior to the Boer war. But it remained for the South African republicans, sparsely gathered behind rocks or concealed in sand-pits on the hillsides, to demonstrate the marvelous efficiency of this new art. So scattered as to leave no target for artillery and very little for even rifle fire, these Boers in their sand-pits, long practised in marksmanship, were able to pick off the English troops at such great distances as to render their artillery almost ineffective and to lead to almost certain death the venturesome brigade which sought to charge over the exposed territory.

The first result is observable in the English service. The saber is relegated to the place of a parade ornament, the lance has been pronounced useless and even the



By courtesy of the Scientific American.

THE "HOLLAND," SHOWING MOUTH OF TORPEDO-GUN, DECK AND CONNING-TOWER.

utility of the bayonet is brought in question. A much more serious military question remains to be answered. Naturally officers educated in the military schools are shy of discussion which would question the usefulness of field-artillery. But of what use is field-artillery, which can only waste large and expensively carried ammunition over the field where a man occupies but six square feet of ground out of two hundred, the chances being that the shot fired will find lodgment in one of the one hundred and ninety-four square feet of unoccupied ground rather than in the particular square feet upon which crouches the Boer rifleman? And when movement becomes rapid and pursuit must be urged, these guns may be truly regarded as impedimenta—though to call light artillery "impedimenta" is a military heresy of the worst description.

The question also comes up in connection with the small-bore rifle as to whether the most powerful military nation of the future will not be one which has put in the hands of every citizen a gun with ammunition enough so that he may learn to shoot fairly straight. It is very curious how invention is bringing about a leveling of classes. If, indeed, the citizen with a rifle and a half-dozen strings of ammunition, leaving his workshop without previous military instruction, as did the Boer, can become the most virile of soldiers, then the republic of

the future will be safe from violence because military superiority will rest with the citizen.

The baby incubator is one of the marvels of science, but as it has elsewhere been discussed by a most competent authority, Mr. Arthur Brisbane, than whom no one can talk more entertainingly of babies and incidentally of incubators, nothing more need be said here regarding it.

Acetylene gas is No. 9 on the list, and is of sufficient importance to be separately discussed by Lieutenant-Colonel Heap, of the United States Engineer Corps, who, as chief of the lighthouse service in the most important harbors of the country, has had occasion to study the subject thoroughly and can speak with such authority as the public will be glad to accept.

THE EXPOSITION OF 1911.

In concluding this number of THE COSMOPOLITAN, which is intended to form a permanent record of the magnificent Exposition given by All The Americas at Buffalo in the year 1901, it may not be amiss to indulge in some brief speculation regarding the great international exposition which will probably be held in Berlin in 1911—ten years later.

A million scientifically trained minds are to-day engaged upon the great problems which concern mankind. It follows that the world's intelligence is bounding forward in geometrical progression. It would not be surprising, with so many minds engaged upon the work, if the actual progress toward ideal conditions for humanity were to be greater within the next decade than it has been during the past five hundred years.

The preliminary problems of production have been pretty well mastered. Unless the world is thrown back by bloody wars, it is to be doubted whether the most sanguine mind of to-day can estimate all that will come to pass during the next ten brief years.

We may only guess vaguely some of the lines along which advance will be made.

Hitherto progress has been largely scientific, mechanical and industrial. The next important steps will probably be in the direction of governmental and social progress.

A crude prophecy might be tabulated somewhat in this form:

I. Aëroplanes.
II. The universal introduction of automobiles, with disappearance of the horse for business purposes.
III. Scientific methods of thought-transference.
IV. Education established upon a scientific basis instead of the present relics of other centuries.
V. Substitution of economic methods of heating cities by oil and gas.
VI. Reconstruction of cities upon lines of highest beauty and usefulness.
VII. Battle-ships superseded by submarine boats.
VIII. The extension of residence over vast suburban areas made practicable by new methods of transportation.
IX. Steamships one thousand feet in length.
X. International federation so extended as to make war unlikely.
XI. A general scheme of production upon a fully organized scientific basis.
XII. A scientific system of distribution well advanced toward practical demonstration.
XIII. A high recognition of the rights of man.
XIV. The unfolding of a new civic spirit among men which will have for its highest ambition the betterment of fellow-men.